The Builder.

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The Water Supply Question: Manchester and other Corporate Towns.

LATELY we gave an instance,—Sheffield,—in which the water-supply is in the hands of a private company. We add now some cases in which the supply is in the hands of the town authorities. In his report to the Home Office, Dr. Pole says that the Corporation of Manchester were the first to carry out the recommendations of the Health of Towns Commission, — that the supply of water to towns should be in the hands, not of private commercial companies, but of the public municipal authorities, and that the charge for water should be made as a public rate. At the time the Commission made that recommendation the water-supply to Manchester and Salford was afforded by an old private company, on the intermittent system; but the service being very deficient, and the company being unable to entertain any large scheme of improvement, the corporation bought up the company, and took the matter into their own hands. The works were designed for the corporation by Mr. Bateman. The water is obtained from the head of the river Etherow, one of the tributaries of the Mersey, and is collected in seven large reservoirs, which have a drainage area of 19,300 acres. The water is brought by gravitation to service-reservoirs near Manchester, from which the town is supplied. The whole of the reservoirs taken together cover an area of 600 acres.

The town mains are not tapped for any purpose other than for hydrants to supply water in case of fire, and the water is always on in them under a pressure sufficient to throw water over any building without the aid of fire-engines. The service-reservoirs are elevated 250 ft., 223 ft., and 145 ft., respectively, above the lowest part of the town, and the whole district supplied is divided into three zones or levels, each of which is served by the reservoir corresponding to its altitude. The house-service pipes are connected with subsidiary or "service-mains," branching out from the arterial mains of the town, and connected with them by sluice-cocks, so that they can be shut off in small separate areas whenever desired, for repairs, or for laying on to new tenements, without interfering with the general supply. These service-mains vary from 5 in. to 3 in. diameter, and are also always charged under pressure.

The water was first introduced from the new works in 1851, and after a short time occupied in adapting the general arrangements to the change, the constant-service system was applied throughout the town. It has ever since remained in operation, except in portions of two very droughty years,—1868 and 1870,—when, in consequence of two new reservoirs then in course of construction not being completed, and in order to guard against the possibility of being unable to supply water for domestic consumption, it was determined, during a short period, to restrict the supply, and to shut the water off for some hours in each day.

The Corporation supplied in the year 1870 an average of 14,315,877 gallons per day to 128,371 houses, the estimated population of which was 685,334. These numbers give an average consumption of about 21 gallons per head per day. The trade supplies are large, being estimated at 7 gallons per head per day, leaving 14 gallons for domestic use.

The arrangements for extinguishing fires are very perfect in Manchester, and much saving has been effected in this respect since an ample supply of water has been available. Mr. Pole says that there is a very general impression that where water is constantly laid on under a tolerably high pressure, fire-engines are unnecessary; but this requires considerable qualification. In cases where small quantities only are wanted it is so; but at large fires *quantity* is the most important thing, and a large quantity can rarely be obtained without so much reducing the pressure in the mains as to leave but comparatively small force available. A single jet may be easily thrown up some 80 ft. or 100 ft., but a single jet would be of little use in a large fire, and when several hose-pipes are put on, the power of projection to any large extent is gone. The fire brigade at Manchester keep engines, both hand and steam, always in readiness. As soon as a fire is heard of a two-horse light cart is despatched, with all possible speed, with hose, jets, and all apparatus for attaching to the hydrants in the streets, and in nearly all cases,—that is, in about 97 out of 100,—this preparation is sufficient to extinguish the fire; but engines are always sent after the hose-carts, to be in readiness in case the fire should prove to be so large that the jet thrown directly from the pipes would be insufficient in quantity to extinguish the fire.

Seeing how largely the population of Manchester had increased, and what bad house-fittings were in existence, which were the cause of great waste of water, and over which the Corporation had no sufficient control, they obtained an Act of Parliament in 1860 to enable them to prevent waste, misuser, or undue consumption of water, by themselves prescribing the size, nature, strength, materials, mode of arrangement, and repair of the pipes, valves, cocks, cisterns, water-closets, and other apparatus to be used; and these regulations seem to have been effectual, for, notwithstanding the growing population, it will be seen from the following statement that for five years after they came into force the quantity supplied was not much greater at the end of the five years than at the beginning. The daily average quantity of water supplied,—

In 1855 was	8,078,152	gallons.
In 1860 was	10,907,183	,,
In 1865 was	11,156,433	,,
In 1870 was	14,315,877	,,

Mr. Pole says, "The relations between the authorities supplying water to any town and the plumbers trading in it have a most important influence on the efficiency of any arrangements which it is attempted to carry out for controlling the distribution. The co-operation of these traders will much facilitate such arrangements, while their hostility will render them difficult in an equal degree. It is notorious that, when left without regulation, the water-fittings supplied to the consumers in a town are very indifferent,—often lamentably bad. This arises partly from ignorance or carelessness on the part of the plumbers as to what are the best modes of construction, partly from working too cheaply (to satisfy speculating builders and others who wish to limit the outlay), and partly from a disgraceful desire to make further work by repairs."

The respectable plumbers in Manchester are invited to sign an agreement, binding themselves to conform to the regulations of the corporation, and to execute all work, both as to material and workmanship, in such a manner as the corporation should approve, in consideration of which they should be formally appointed "authorised plumbers." No one is compelled to employ one of these authorised plumbers, but the advantage of doing so is that they, and not the consumers, are the persons held responsible by the corporation for compliance with the regulations.

Taps and stop-cocks are the chief articles to be attended to, water-closets in Manchester not being common in the lower class of houses. Out of 128,000 houses in the district, only about 10,000 contain them. Nevertheless, all valves and fittings to water-closets and baths are included in the regulations. The corporation require all water-fittings to be approved and stamped at their own warehouse before use; and these regulations are really in the interest of the consumer,—or, at least, of the owner of the house,—as well as of the corporation, inasmuch as they compel him to have good work, which will not only ensure the efficiency of his water-supply, but save him from the expense of frequent repairs.

The charges for domestic water-supply in Manchester are made on the principle that was recommended by the Health of Towns Commission, and are as follow:—1. A "public water-rate," to be levied on *all property*, payable by the *owner*. 2. A "domestic water-rate," to be levied on *all dwelling-houses*, payable by the *occupier*. The amounts levied can be varied by the corporation from time to time. At present the public rate is 3d. in the pound, and the domestic rate 9d. in the pound, estimated on the poor-rate assessment. No extra charge is made for one water-closet in a house; nor for private baths; nor for horses and carriages, unless used for business purposes.

From a "Memorandum on the distribution of water to the town of Leeds," furnished to Mr. Pole for the purposes of his report by the resident engineer and by the superintendent of the works belonging to the corporation, it seems that the average daily supply at Leeds to 260,000 inhabitants is about 6,000,000 gallons, being 23 gallons per head, of which from 4 gallons to 5 gallons are for trade and public purposes, leaving from 18 gallons to 19 gallons for domestic consumption.

All waste-pipes are authorised to be made to discharge either on to the nearest sink or such other suitable place as the officer of the corporation may approve, so that any waste may be visible. The weights of lead service-pipes to be used are to be as follow:—2-in. pipe, 38 lb. per yard; 1¼-in., 26 lb; 1¼-in. 21 lb.; 1-in., 13 lb.; ¾-in., 11 lb.; ⅝-in., 9 lb.; ½-in., 7 lb.; and ⅜-in., 6 lb. per yard. No pipe less than ⅜ in. diameter is to be used. The taps are to be of the same pattern and quality as those manufactured by Messrs. Guest & Chrimes, and numbered 27 in their list.

The kind of water-closet known in some places as the "pull-down" closet, which consists of a simple pan and trap, and a pipe (commonly made too small) leading down to it from a cistern overhead, is, in Leeds and elsewhere, called a "sanitary" water-closet. Every closet of this kind, and every closet of whatever kind, in houses not exceeding 10*l.* rental, is to be provided with a double-valve water-waste preventer, having a boot, or division, and having the valves so connected that both cannot be open at the same time.

The charges for water for domestic use are made on the gross rental, and the bulk of the

houses,—that is, those from 4*l.* to 20*l.* a year,—are charged at the rate of 5 per cent. on that rental. If the rental does not exceed 4*l.* a year the charge is 4*s.* per annum. Above 20*l.* the rate decreases until a 35*l.* house is charged 30*s.*; a 50*l.* house, 40*s.*; a 70*l.* house, 50*s.*; a 100*l.* house, 70*s.*; and above that, 4 per cent. on the rental, up to 250*l.* a year; above that, 10*l.*, irrespective of rent. One water-closet is charged 5*s.* 4*d.* a year extra, and each additional one, 2*s.* 8*d.*, except that where the rent is not more than 10*l.* a year the charge for one is 2*s.* 8*d.* each house. Horses are charged 5*s.* each per annum; washing carriages, 5*s.* for two wheels, and 7*s.* 6*d.* for four wheels; cows, 2*s.* 6*d.* each per annum. The rates are payable quarterly in advance.

The supply of water to Liverpool in the year 1870, according to Mr. Pole's report to the Home Office in 1871, amounted to 16,334,105 gallons per day, of which about 62 per cent. was derived from the Rivington reservoirs, near Chorley, twenty-five miles from Liverpool, and the remainder was pumped from deep wells sunk into the new red sandstone beneath the town. The population supplied with water in that year was about 625,000, and the above-named quantity gives an average daily supply of 26·1 gallons per head of that population, being divided thus:—

	Per head per diem.
For trade purposes.....	2·6 gallons.
For public purposes	2·0 „
For domestic supply	21·5 „
	26·1

From these wells was derived the old water-supply before the Rivington works were made, from which source water was brought into the town in 1858. These works consist of seven large reservoirs, which impound water gathered from 10,000 acres of moor and mountain land. The reservoirs contain together about 3,260 millions of gallons, and the top water-level in the lowest of the series is 428 feet above the Old Dock sill at Liverpool. The Act which authorised the Rivington works to be made directed that the corporation should afford from these reservoirs certain quantities of water, amounting on the whole to about 8,000,000 gallons per day, as compensation to mill-owners and others along the line of the impounded streams.

For several reasons, which we cannot now stay to notice, the supply of water from these works was in danger of falling short in 1865, and the old wells were again resorted to, and new ones sunk. In the following year the water-engineer of Liverpool, the late Mr. Thomas Duncan, reported to the corporation on various schemes that had been proposed, and in favour of one that had been proposed many years before by Mr. Robert Rawlinson, the River Dee, below Bala Lake; but having spent so much money on the Rivington works and otherwise, the corporation decided to improve and extend these as far as possible before going elsewhere. This they were doing at the date of Mr. Pole's report.

Previously to the year 1862, the mode of charging for the domestic use of water had been that ordinarily adopted by waterworks companies, that is to say, a per-centage on the rental of those houses to which water was supplied; but in that year the corporation obtained an Act of Parliament authorising them to alter the former mode of charging, and to adopt a different principle.

The following are the charges now in force:—1. A public rate, called the "water rate," of 6*d.* in the pound, is levied on all property rated to the poor. 2. Water supplied to shipping is charged at the rate of 7*s.* 6*d.* per 1,000 gallons. 3. Water supplied to manufacturers is charged at 9*d.* per 1,000 gallons. 4. A "domestic water rent" is payable in cases where water is actually supplied. It includes baths and waterclosets, and is variable in amount, being fixed from time to time by the corporation. 5. Water for horses, gardens, &c., is charged for at rates fixed by the corporation. In fixing the amounts of 4 and 5, the corporation adopt such a rate as will make good the deficiency between the annual expenditure and the income derived from the first three sources. The "rent" usually varies from 5*d.* to 6*d.* in the pound.

The supply is not constant, being on in the service mains, from which the houses were supplied, only during the daytime, *i.e.*, for about twelve hours, and is shut off from them during the night; the chief mains, however, being always charged.

THE GRAMMAR OF ARCHITECTURE.

BY W. PETTIT GRIFFITH, F.S.A.

"To be rich without profusion, simple without barrenness, is the great aim of an architect."—*Percier.*

"The world is still deceived with ornament."
"Thus ornament is but the gilded shore
To a dangerous sea."
"——Plainness moves me more than eloquence."
Merchant of Venice.

It is an important inquiry as to the extent architects are justified in consulting their architectural classics, leaving a new style out of the question, without being denounced as copyists or plagiarists.

Sir W. Chambers accuses our greatest architects with having too much neglected the detail, it being the duty of an architect to attend to the minutest object, as well as to the most considerable. By so doing, he says, a practitioner may distinguish himself from the common herd of those who assume the title of architects. The most masterly disposition, incorrectly executed, can only be considered as a sketch in painting, or as an excellent piece of music performed by country fiddlers.

The study of architecture requires to be carefully and nicely handled, and it must not be overlooked that the mouldings form the very grammar of the art; without them all buildings would be senseless masses.

It is of more importance just now than at any other period, that the proper use of good mouldings should be encouraged, as powerful temptations are offered to force the employment of colour, in lieu of form, upon the architecture of the day. The folly of using soft red bricks is now deplored, and mosaics for external work are now proposed to be thrust upon the public attention.

During the Middle Ages, when people could neither read nor write, the religious teachings conveyed to the people through the medium of painted and stained glass windows, fresco, mural, or other paintings, encaustic tiles, &c., were most instructive; but, at the present day, the more light we receive in our churches the better. By all means preserve the mind-products of former times, but do not reproduce them. They have done their duty well, and deserve respect.

Sacred writ was not always truthfully exhibited, either on canvas, glass, stone or embroidery; it is a question, therefore, in these enlightened days as to the desirability of exactly imitating the old school. How often have the vices, particularly from Venice, been pointed out, of representing Scripture histories, after the most immodest and scandalous manner, without any sanction or authority of truth.

In the Middle Ages the mind was influenced through the eye. In the reformed church the mind is reached by the ear: hence the absurdity of over-decorating our churches.

The streets of London are filled with palaces, crowded into narrow thoroughfares, and not to be viewed without risk of dislocation of neck or loss of hat. The money wasted upon these edifices is to be deplored; as, in most instances, neat elevations, carefully proportioned, with moderate cornices, and suitable sculptures, would be more tasteful and answer all purposes. In many buildings, the mouldings are either clumsy and too large, or insignificantly small, spaces badly distributed, sculptures indifferent, columns ill-proportioned, and tasteless sensational ornaments everywhere.

Many architects exhibit a great desire for over-decoration, forgetting,—

"Beauty, truth, and rarity,
Grace in all simplicity."
Shakspeare.

A well-distributed ornamentation produces a far better effect than a profusion crammed into confined spaces; and however the multitude may admire the rich confusion, it requires a well-regulated mind, as Horace says, to "prune all ambitious ornaments away," and to appreciate a duly proportioned and decorated production.

The relative surface proportions in which the primary, secondary, and tertiary lines harmonise with each other, have been clearly shown in a "Manual of Colour"; and there would be no difficulty in proving that relative surface proportions, plain and decorative, may be likewise harmoniously distributed, and thereby avoid that over profusion of ornamentation which destroys the appearance of many of our principal buildings. An ordinary intelligent eye can, without difficulty, discern between a good and bad façade, for,—

"Beauty itself doth of itself persuade
The eyes of men without an orator."

Real architecture does not consist of over-decoration, as practised by our Continental neighbours, but of a duly-proportioned edifice having its mouldings well adjusted, and its sculptures well balanced. To an uneducated eye clumsy mouldings appear bold and sensational; to the cultivated mind they are unbearable. Much may be learnt upon this subject by an observant walk through our principal thoroughfares, and the discerning architect will be astonished at the great absence of careful proportion: the projection of the cornices is either too great, so as to half conceal the superincumbent attic, or else too poverty-stricken; the pediments and the trusses to windows and doors too large and over ornamented; columns too tall or stunted, with a ridiculous entasis; and so throughout the compositions.

Errors of this kind are naturally common among civil engineers; their education, requiring a higher and more scientific development than that expected from architects, prevents them from paying attention to the formation of mouldings. This defect on the part of the engineers can be easily remedied by their seeking the services of an architectural tyro, who, though not perfect, still would create more reasonable details than they themselves are capable of producing. We are not bound to servilely copy former mouldings and forms,—

"A just and ample license, which, if used
With fair discretion, never is refused."
Horace.

Every architect is acquainted with the exquisite purity of the architecture of ancient Greece; consequently whenever this style is consulted for future development, the grand point to be observed is to continue the spirit of its authors by following in their footsteps. Roman architecture, on the contrary, was nothing more than a garbled edition of the Greek style, and although the Romans have handed down to us some choice specimens, still it was left for the Palladian school to proportion, arrange, and to adapt their crude works for practical use. The grammar of architecture has been much advanced by the works of Palladio, the latter should be well studied, and not forgotten.

Judges in competition cases ought to demand an inspection of the detailed drawings, as well as the pictorial views, because, however well a building may be planned or designed, if the cornices, mouldings, &c., have not their correct projection and contour, the absence of these properties in them will mar the best proportioned building in the world.

It would be only reasonable, I think, that, when money is voted by Government from the public purse for public buildings, all competitions should be open to the profession. How is talent to be recognised, or architecture advanced, if competitions be limited to a handful of architects, selected without reference to their brethren's opinions of their merits, but merely because they have friends at court, or practise a fashionable style of architecture, generally possessing no other recommendation than eccentricity?

Upwards of thirty years ago, I stated, in *Loudon's Architectural Magazine*,* that "it is well known that, by the officiousness of parties who sometimes have the management of erecting public buildings, the original intentions of the architect are often nearly, and sometimes, quite destroyed, to please the whims and fancies of these directors. Now, if these interferences were made by persons who had acquired some taste for the art, let that taste be ever so small, professional men might benefit by their suggestions. The importance of possessing a knowledge of architecture is, by many persons, never perceived until they are called upon to exercise an opinion on the subject; and yet there is scarcely any one who may not be solicited to join a committee to decide upon the merits of architectural designs for schools or other buildings connected with the parish in which he resides. The deficiency of persons often put upon these committees is pretty well known, and more especially by those architects whose drawings have unfortunately happened to fall into their clutches."

Since the above was penned, a great improvement has been effected: drawings are often publicly exhibited prior to a decision being pronounced, and in the *interim* the press is permitted to give an opinion,—consequently, if an ignorant decision be made, the best competitor may lose the premium, but not the merited honour. So far

* Vol. iii., p. 406.

an improvement in one direction. Curiously enough, as regards the committees, and the public in general, their knowledge of architecture has not advanced one jot. Ask them the differences between a Greek and a Roman capital, or between Early English and Decorated English, and you may be certain of the answer; plans and sections are enigmas to them.

It has been the fashion of recent times to denounce and ridicule precedent,—to repudiate those rules and architectural maxims which have occupied a thousand and more years to perfect. This retrograde movement was aided by men, professors of our art, who, having young men under their educational care, ought to have been more careful in giving vent to their opinions.

It would be well if architects guided the public taste, instead of rendering themselves slaves to it. Sensational architects are selfish persons, satisfied with a little temporary notoriety, and of whom posterity will know nothing. If Palladio, Inigo Jones, Wren, Chambers, and others had belonged to the above class, their well-proportioned and decorated productions, that are so justly admired, would not have afforded us that instruction and educational delight which they now do.

The common sort of builders in this country, observes Sir W. Chambers, are extremely fond of variety in the ornaments of windows, and, indeed, in every part of a building; imagining, probably, that it betrays a barrenness of invention to repeat the same object frequently. These inventive gentlemen would do well to give their attention to some professors of the mechanical arts, who, through exercising their talents on meaner objects, are nevertheless worthy of their imitation. No tailor thinks of employing seven or eight kinds of buttons on the same coat; a cutler will not make ten different sorts of knives for the same set; and if a cabinet-maker be trusted to furnish a room, he seldom introduces more than one sort of chairs. We do not discover, either in the works of antiquity or in those of the great modern architects, any traces of this foolish hankering after variety. The same object is frequently by them repeated a hundred times over; and this is one of the causes of that amazing greatness and that noble simplicity so much to be admired in their productions.

The public taste is easily formed and led,—architects have great power over it. The architecture of a city remarkably indicates the civilisation of its inhabitants: when buildings are seen composed of streaky red brickwork, twisted, ill-proportioned columns, adorned with cabbage-leaves and other trifles, you naturally find the same frivolous taste in all other matters of art. Turn to the music-halls, which might, under proper direction, exercise a great influence over the general taste, by providing good, standard music, instead of such miserable episodes as "The Life of a Cadger, or ve vants no Work to do"; "Petticoat-lane"; and many other popular songs.

There are certain maxims or canons enunciated for the guidance of correct taste in architecture: if these are founded upon truth, and admitted, then all departures therefrom are bad, and, of course ought to be avoided.

The present Gothic mode of roofing buildings may be compared to the extravagant style of head-dress in the fourteenth century, when it was built up in a couple of cones or spires, which stood so excessively high on each side of the head, that a woman who was but a pigmy without her head-dress, appeared like a colossus upon putting it on. Nature, says Addison, seems to have designed the head as a cupola to the most glorious of her works; and when we load it with such a pile of supernumerary ornaments, we destroy the symmetry of the human figure, and foolishly contrive to call off the eye from great and real beauties, to childish gewgaws, ribbons, and bone-lace.

Our architectural classics are valuable; but I think that more direct practical information is to be obtained from buildings themselves: for instance, take students, and personally point out to them, not the beauties, but the shortcomings, of city architecture, and those in the suburbs,—they will never forget them. I do not mean to say that all the absurdities are the faults of architects. Some people act for themselves. Builders, also, act for them,—engineers, if they can get a chance,—and so forth; nevertheless, the extraordinary blunders committed are such as to cause even a tyro in art to shudder. They occur in even the more important buildings. All these errors might have been avoided simply by a knowledge of the grammar of architecture. We should not forget that,—

> "The master-piece of knowledge is to know
> But what is good, from what is good in show."

Reynolds says, that in our inquiry after simplicity, as in many other inquiries of this nature, we can best explain *what is right by showing what is wrong*; and, indeed, in this case it seems to be absolutely necessary. Simplicity, being only a negative virtue, cannot be described or defined. We must therefore explain its nature, and show the advantage and beauty which is derived from it, by showing the deformity which proceeds from its neglect.

New views are occasionally ventured. Recently "Symmetry from a Gothic Point of View" has been enunciated. The writer, an architect, speaks of the palace of the Archduke Michael, at St. Petersburg. "It was a purely Classic building, and one of the best modern erections in that style he was aware of. The two wings of the building were, externally, exactly alike; but, on consulting the plan, one wing consisted of a spacious apartment occupying nearly the whole of it, while the other comprised a number of small rooms. This was certainly not true symmetry."

When the eye takes in at a glance an external view of a building, if the latter be symmetrical, it pleases the eye,—a building may, however, be unsymmetrical, yet agreeable to the eye, through having its parts picturesquely grouped. But to render the internal arrangements of a plan symmetrical, as suggested above, would be of no value, or even pleasing to the eye, because the eye could not discern all the rooms at one glance. Perhaps the writer proposes that a plan of the building should be hung in the hall, as the eye could not discern the plan at one glance of the building.

Quatremère de Quincy, quoted by Loudon,* says there exists in many plans a sort of mechanical correspondence, which consists in chalking out the arrangement of one side exactly by the other; a merit more imaginary than real, and which is a total loss to the spectator, as it can contribute but little to the effect of the whole.

An architect who copies existing styles is denounced as a mechanical fellow: this is correct, but curiously enough, how few there are who can copy,—the majority produce simply caricatures.

Asserted original attempts are often merely cloaks for ignorance,—there is much to be learnt from the former phases of art, and an architect who has studied the various styles of each country has an excellent opportunity of extending and working in the spirit of the style he selects. In the Greek architecture, the materials for design contrast wonderfully. There are the Parthenon and the Temple at Corinth,—who is to become the Greek Palladio, to reduce the architectural dissimilations to proportion and propriety? Of what value would the Roman remains have been to the profession if they had not been collected, compared, adjusted, and reproduced for practical purposes?

It is surprising how varied the matter which is set forth in a large volume of literature, the result of combination of the twenty-six letters of the alphabet, and the wonderful calculations produced by a few numerals. The same with architecture. The few mouldings of the different styles can be appropriately employed for further development in each style, and produce wonderful variety.

As practice makes perfect, this may hold good in some cases; but, as a rule, to ensure success in producing well-proportioned and harmonious mouldings, I would recommend a careful study and comparison of similar mouldings in the various styles, and then the adoption of forms suitable for the decoration of the building in contemplation.

Regular architecture is not guided by such arbitrary rules as people imagine; the contour of mouldings varies very much. Some architects deem themselves so gifted that, without reference to ancient authors, by taking a black board and a piece of chalk they can mark the mouldings off-hand as the works proceed.

There has been much unmeaning and idle talk concerning fine-art architecture, which has been in importance unfairly contrasted with the knowledge required for building, the latter being looked upon as a mere mechanical production, whilst the former has been upheld with a Royal Academic castle-building-in-the-air significancy. The truth is, that building is a science requiring more real headwork than is at the present time devoted to fine-art productions. Divest a cathedral of all its decorations, and you would still possess a scientific giant. I am not an advocate for deteriorating the value of fine-art productions, my object being to direct the attention of young architects to the intrinsic importance of devoting more attention to the science of building. The exterior of nature is lovely; how far more wonderful and scientific is the interior: in the production of the latter a real headwork has been exercised. And how much dependent is the beauty of the exterior upon the interior: ill-proportion your human frame, or a cathedral, or a church, and all the fine-art pleasantries in the world will fail to render them beautiful.

Robert Morris, 1734, justly observes in his lectures, that a plain regular front, without dress or ornament, if justly proportioned, will better satisfy the taste of the judicious, and more immediately strike the eye, than all the gay dress and decoration of an ill-proportioned design: this has been confirmed by Cresy, who says a building, though entirely devoid of ornament, may be rendered beautiful by the justness of its proportion, and the richest edifice wanting in this never can excite admiration.

We cannot be too anxious in designing our buildings, and in constructing them with the most durable materials. Of course, the air is the menstruum that consumes all materials whatever, till the earth shall be no more, and time itself shall end! But still, if the temples of Greece had been of Bath stone and red bricks, their remains would not have been spared for our contemplation and instruction; it therefore behoves us to create good architecture, and to execute it with the most suitable and lasting materials. Preliminary sketches, rough and vigorous, such as those by Prout, the Rev. L. Petit, and others, are excellent for conveying to the mind the general effect of buildings; but without neat and mechanical precision in drawing, little real architecture can be produced.

Much to the credit of the present age, we are seldom treated with philosophical inquiries into the nature of taste,—papers in which the writers "are continually discoursing of effects instead of developing causes; and after many prettinesses, in very pretty language, do fairly set you down just where they first took you up."

The architect has to deal with material substances, to be fashioned into intelligence by his experienced mind. Let any one test his head against a stone column or a brick wall, and he will find the truth of this remark. Let the philosophical man place in the hands of a builder or mason a specification of works proposed to be done, and it will be returned with a smile. We all of us know that, when young, if we are called upon to build a church, that without experience, when the cross is put on, or in a classic building a vase, it appears ridiculously small; and we take care afterwards, until we have had experience, to raise in wood the cross or vase to test the proper size for a given height. It will be found that philosophical inquiries generally treat of subjects of which the writers know but little, and their readers nothing.

The painter's ignorance of proportion is well known, particularly when buildings form a prominent feature. This is not to be wondered at when he is taught to be jolly and lively, and to ignore such dry studies. Ruskin says that "proportion was dull, to say the least of it; and he would ask men of genius on the proportionate system upon what achievement of the past would they in their old age look back with satisfaction?" "He thought they might abandon the theory of architecture being in proportionate lines, and find something better upon which to feast their fancy." "If architectural designing led to no pleasant journeys, if it did not excite life and emotion, and passion, it sank into a condition in which those who practised it were neither numerators nor denominators, but mere common fractions."

The principal causes of the differences of opinion among those who criticise in architecture, are owing to their *different degrees of knowledge of the principles of the art*; for critical taste does not depend upon a superior principle in men, but upon *superior knowledge*: it is the offspring of learning and a just education, and is always more or less within our power.

In 1734, Morris published lectures on architecture, founded upon harmonic and arithmetical proportion, designed "as an agreeable entertainment for gentlemen:" this sounds anything but dull!

* *Architectural Magazine*, vol. iii., p. 2.

A knowledge of geometry has, before now, led to profitable results. "Aristippus, the Socratic philosopher, shipwrecked on the coast of Rhodes, perceiving some geometrical diagrams thereon, is reported to have exclaimed to his companions, 'Be of good courage; I see marks of civilisation!' and straightway making for the city of Rhodes, he arrived at the Gymnasium, where, disputing on philosophical subjects, he obtained such honours, that he not only provided for himself, but furnished clothing and food to his companions."

There is no doubt that architecture is an art less understood, and worse practised, than any other. An architect is dependent upon an educated eye, perfected by long, laborious study; and does not rely upon sensations, feelings, affections, emotions, and romantic dreams. These we leave to the painter, while the architect rests satisfied to leave his works to the admirers of the beautiful, the grand, and the magnificent. Proportion being based upon, and sanctioned by, Nature's works, will endure for ever; while Venetian Gothic, red brick, Bath stone, and twisted, stunted columns, will decay in their author's lifetime, and form picturesque ruins for Ruskin and his satellites to muse upon, until the public have common sense to reject such unprofitable visions.

Some years ago an architect was ill-esteemed had he not travelled abroad; but bear in mind that at the present time there is more to be learned from the valuable measured works of Stuart and Revett, Taylor and Cresy, Bowman and Crowther, and others, than from any sketches to be obtained; besides which, recollect that your own tailor can visit the Continent with a camera, and vie with you in perspective views.

It will be well for architects to study, and to pay more attention to historical sculptures. Sculptors may occasionally realise living forms somewhat satisfactorily, but whenever they meddle with material form, either in designing pediments, pedestals, or other architectural features, they invariably raise a smile; and this is the result of their want of knowledge of proportion, mouldings, and other details.

In our ancient sculptures, historical and floral, the geometrical key-note exercised a great influence over the direction given to the living forms, foliage, and so on.

To those who desire to create beautiful buildings I would suggest that more time be devoted to the Grammar of Architecture: much expression depends upon the nice manipulation of the mouldings; and as in music, so in architecture, rhythm, uniformity, and simplicity are needed for a perfect development.

THE HITCH IN SANITARY REFORM.

It is a matter for serious regret that in the reports of a recent deputation to wait on Mr. Stansfeld on the subject of sanitary reform, the impression should have been given that a professional, rather than a comprehensive, standpoint was selected by the speakers. We are convinced that such was not the intention of the deputation. No intelligent person can either doubt or undervalue the primary importance of medical inspection in sanitary matters. It would be as ignorant to do this as it is to disregard the equal importance of engineering experience. The physicians and medical practitioners of this country would consider themselves extremely affronted if they were called upon by the Administration to inspect, to take up, and to re-lay drains! They would not consider that their knowledge of climatic influence, and of the character of that local climate which, as far as health is concerned, is a question, not of degrees, but of yards, was such as to fit them for dealing with the great question of watershed. They know, far better than it is for us to point out, the true limits of their own beneficent practice and special education. We wish to put the question to them whether, in their natural and proper anxiety that imperfectly-educated men should not be allowed to exercise strictly medical duties, they may not have given to the minister at once a false impression of the real object they have at heart, and an excuse for that persistency in doing nothing into which the Government has unfortunately drifted. When men are hard-pressed with work, or when they are enjoying a temporary rest from such pressure, it is not in human nature to resist taking advantage of any excuse for continued inaction. While the country is watching the Local Government Office for signs which it does not give; while place after place is asking for inspectors who are not forthcoming; when the terrible typhoid is again selecting the noblest victims, and entering on a winter campaign which the mere passing of the stump end of one Act of Parliament, followed by no definite action, is not likely to check;—it is a thousand pities that the minister should have an excuse put into his mouth which is that most fatal of all falsehoods, a half-truth.

If we could reconcile it to our sense of propriety to become the advocates of a class interest, in opposition, or even in priority, to that which is the true interest of the whole community,—if we were to consider it our first duty to "make work" for the architect, the engineer, and the builder,—we could not wish for anything better than the committal of the needed sanitary re-organisation of the country to the care of the medical profession, unaided by the proper skill of constructive science. But such a position would be like that of a physician who should advocate the unchecked sale of drugs of all kinds, poisonous or otherwise, or the free practice of the self-taught practitioner, on the ground that it would increase the activity of disease, and so, ultimately, make more work for the actual man of art. We know, and all practical men know, what comes of the work of the amateur, or of the non-building man, who meddles with bricks and mortar, with drains and pipes. To those whose object it is to "make work," and to draw the largest possible sum, in the long run, from the pocket of the customer, nothing is so welcome as to see him begin to save money (as he expects) by dispensing with specially-trained skill. And if we are to have this all over the country, if sanitary engineering is to be treated as an inferior branch of the art of the apothecary, we know both who ultimately will lose and who will gain, at least in a pecuniary sense.

If, again, instead of taking this purely selfish money-grubbing view, we were to regard the subject under the influence of *esprit de corps*, we might have a lance to break with medical men in an encounter in which numbers would be on their side, and reason and right on our own; for, after all, if the care of sanitary provision is to be single and not double, it is the proper province of the architect and engineer in preference to that of the physician. This statement is proved by one consideration. It is no reflection on the ablest physician to suppose that he is entirely ignorant of the skill and art of the builder. Indeed, if his time has been entirely taken up, as is the case with the most eminent of the profession, with study and with practice, such an ignorance is a necessity. It is in favour of, rather than against, the eminent character of the man. He may pronounce that a certain locality is unhealthy, that ventilation is requisite, or that drainage is requisite; but how this requisite should be supplied he knows no more than the architect knows what drugs to prescribe for a sick man. The physician can indicate the fact that the services of the builder are requisite. In the case of the most eminent physician, he neither can nor will do more.

On the other hand, it *is* a disgrace to an architect to build an unhealthy house, or not to know how to remove a nuisance. The knowledge of the medical man is in no way superior to his own, if he be fit for his own profession, as to the fact of certain arrangements being unhealthy; but as to the mode of removal of the cause, it is the architect alone who can be the judge. Thus, in the first instance, that of the observation of the evil, the two men are about on a par. In the second part of the story,—the remedy,—it is the latter alone who has anything to say. If only one man is needed, the engineer is that one man.

How is it, then, that men are found to imagine or to admit a claim on behalf of the medical profession, to take charge of the physical sanitary arrangements of the country? There are two reasons for this error; and, as is often the case with a pair of reasons, one is good and the other bad.

It is the medical man to whom appeal is naturally made, in the first instance, on the outbreak of disease. It is his function to stem that outbreak,—a function often discharged with consummate skill and with great self-devotion. And what is almost the first question put by the skilful physician, when consulted, in nine cases out of ten? It is,—Where does the patient live? Is his disorder the result of poisoned water or of poisoned air? Is it arising from a damp house, or from a damp or ill-drained soil? Often and often will it occur that the able medical man thus at once touches with a needle the very nucleus of the evil. "You must leave your house. You must quit that alluvial soil. You must seek or you must shun the sea air." Thus, as man naturally clings to him who has superior knowledge (when he wants the fruit of that knowledge), the patient will naturally say,—"Doctor, what must I do? Will a new roof keep my house healthily dry? Do you think that my drains can possibly be pestiferous?" Thus, in spite of himself, is the physician made into a sanitary inspector; and thus, if the proper man be not at hand, for the physician to call in, may be led to attempt special functions which are not his own, and which he knows that he can very ill discharge (or if he does not know it, so much the worse for all parties), as a mere forlorn hope in the rescue of suffering humanity.

This, then, is a good reason why the medical profession should have insensibly drifted into a position that is not their own, and which they can only occupy to their own detriment and to that of the public, with reference to the duties of the sanitary engineer. But we said that there is also a bad reason for the position which this question now assumes to the vulgar eye. It is this. The medical men are much more numerous than the members of the professions connected with building. Their voices are more audible,—the accumulated sound is incalculably louder. We blush to admit that, in the full blaze of the nineteenth century, the ministers of a country like this should base their conduct rather on the loudness and persistency with which a claim is made than on the right and reason of the claim. And yet! we eschew politics,—but can any one doubt that it is this very power of voice and power of numbers that in the press, in society, in Parliamentary debate, has led nine persons out of ten to believe that a doctor is a man naturally learned in water supply and in sewerage?

Let us take an instance as to which the present week, for the first time, has seen the collection of the statistics. What does London pay for her water supply? It is a simple, non-medical, engineering question. The reply is, London pays annual water-rent to the gross amount of more than a million sterling (the actual figures are 1,041,132*l.*). This rent is collected by eight companies, who have actually expended on their works, mains, and other appliances the gross sum of ten millions and an eighth (10,137,710*l.*). To maintain and to manage the system carried out at so large an expense, these eight companies pay more than four hundred thousand pounds per annum (411,965*l.*), being about 40 per cent. of their charges for the water supply. That leaves a return on the capital spent of about 6 per cent.; which, considering the precarious nature of the property, and the depreciation and danger to which it is exposed, cannot be considered exorbitant. It is not such as should induce any very prudent man to seek to enter into competition with existing companies. The respective rates of profits of these companies differ among themselves, the Kent Company, for example, spending 22,000*l.* out of an income of 62,000*l.*, a little more than 30 per cent.; and the West Middlesex, spending 66,000*l.*, out of an income of 116,000*l.*, or a little over 50 per cent.; but the average returns are the safest guide for our present purpose.

Now, the quality, the quantity, the frequency, and the level of this supply are subjects of extreme sanitary importance. Analysis of the water, which is now regularly conducted, is a matter, not of medicine, but of chemistry. It is the special duty of specially-educated men, the most eminent of whom have no connexion with therapeutics. Out of the four points requiring attention, then, there is only one into which the medical man is likely to be specially qualified to enter; and even this is out of his proper province. He may be an analytical chemist, as an engineer may be, or he may not. He will be none the worse fitted for his proper curative duties in the latter case; and, whatever be his chemical knowledge and skill, he will have recourse to an expert for analysis, if he have any patients worth mentioning on his hands. The other three questions are simple matters of engineering, controlled (as the first is also) by financial considerations. No one who remembers the great complaint made not long ago by a large district as to the extreme deficiency of the water-supply can doubt that this great engineer-question will have to be resolutely tackled before very long. London is paying six shillings a head for water. The quantity demanded is daily

increasing. The quantity supplied is, in some instances, such as to be unfavourable to health. A good deal has to be done in the matter, and that by some authority, whether administrative or Parliamentary, that can grasp all the facts, and deal with all the interests concerned. It is a question eminently concerning the wise administration of sanitary law, but it is an engineering question, and one on which medical,—as distinguished from chemical,—science has nothing to say beyond truisms with which we are all familiar.

If sanitary improvement is to depend, as Mr. Stansfeld implied, on the gradual "rising of the local boards to the height of their new functions," the theory may be admissible; but, mean time, fever and pestilence will have their own way. Nor can we foresee that any real reform will be effected till some scathing misfortune wakens the country to declare that what it demands is, not gradual political self-education, but physical purity: not a policy, but a fact.

We see that the medical profession are alive to the great difficulty, to which we called early attention, of the inability of the country practitioners to hold their own against the parsimony of the local boards without the aid of proper organisation. Mr. Stansfeld recommends courage; but that is but cold comfort. What is required is, that degree of associated authority that organisation alone can give; and, in the absence of which, the best efforts of the best men are but too likely to be hopelesly frittered away.

In a word, the issue which we join with the minister is this. We are agreed as to the presence of a terrible foe, and the necessity of taking measures of resistance. We propose that such resistance should be organised according to our best resources, and that the Minister of Health should dispose of the two arms proper for the encounter. Of these, the medical profession may be regarded as the cavalry,—its first function being that of obtaining intelligence; the engineering profession forms the infantry and artillery, who are to attack and to occupy position after position. But Mr. Stansfeld proposes to make the attack by a cloud of volunteer skirmishers, to whom he refuses uniforms and officers. This is not a mere illustration, but a fair description of the difference between the two systems. Or again, we may say: we look to result; and we propose the best means of attaining that result; not for the sake of those means, but for that of the object. Mr. Stansfeld looks at the means for its own sake, and thinks more of how a reform is to be arranged, so as to educate the people in its progress, than at the end to be effected. In this he counts on one ally who is, in point of fact, his most fatal opponent: we mean Time. Allow decades or centuries to elapse, and country boards may "rise to their functions;" isolated medical men may find courage, and water-shed districts may shape themselves.

We see how the action of Time has already taken place. We can measure the progress made in Sanitary Reform since the Royal Assent was given to the Bill of last session, but we must take the smallest unit known to English long measure for the purpose. Time, we repeat, is enlisted on the wrong side. The sanitary urgency is one thing, the political outcome another. We hold that sanitary measures should be primarily regulated by sanitary principles. If this one point be admitted, there can be no doubt as to what is requisite. The double organisation of the medical and the engineering staff, each in its own province, and each upon its proper principle of action, is essential to the scientific, which is also the truly practical, treatment of the case. As to the political aspect of the question, there is room for differences of opinion, into which we forbear to enter. We think it ought to be regarded, not on political, but on sanitary grounds. If this is the verdict of the country, there can be no question as to the general form of the organisation which is needed for giving fair play to the public health. We have no doubt what the ultimate course will be, but we should rejoice to see it adopted without further waste of time, of money, and of life, that is more precious than either.

Borough Surveyorship of Burnley.—There were sixty-five candidates for this appointment, from which the committee invited three gentlemen for further consideration; and, after an interview, Mr. Edward R. S. Escott, of Halifax, was unanimously selected.

SOCIETY OF BRITISH ARTISTS.

THE collection of pictures and drawings forming the present winter exhibition, at the Gallery in Suffolk-street, is of just such relative unimportance when compared with the chief annual display of the year, as custom and consent have settled for a proper distinctiveness, and that is as little as possible: even this difference will become more accidental and less incidental presently, and summer's ripeness will bring with it very slight improvements on the fruit of winter's growth so far as picture production is concerned. This may really be advantageous in some cases where maturity and full strength mean but stronger evidence of immaturity and weakness. A very off-hand sweep would skim the cream of what may be found here, not enough to churn into the butter of flattery, and give a thin layer of it to a tithe of the numerous contributors to this collection. Mr. Baxter sends two of his pretty female heads, that serve to recall how very pretty his fancy portraits used to be; his "Bride" (93), and her charming sister, of a yet unfixed fate, taking "The Stroll" (128), bear some evidence that these agreeable features of a long time's notoriety are not to become wholly things of the past; and, though no present portentous meaning is to be ascribed to "The Wreck" (83) of Mr. A. J. Woolmer, this subduedly gorgeous combination of bright hues, rich shadows, sea-nymphs, and other mythic marvels, refreshes a long memory of similar remarkable effects conclusive in establishing Mr. Woolmer an old master beyond the reach of a new man. There was glamour in his art at a period when elaborate copyism was not considered the only food, and food enough for wonder. Now, Mr. W. Bromley's peasant children happily circumstanced in home-scenery, "Blackberry Picking" (6); "Watching the Bird-trap" (92), or "Angling" (186), though no high degree of finish is attained in their representation, are far more likely to secure admiration than anything that appeals to the imagination rather than conviction. This popular taste for simple, natural incidents is, as usual, well provided for, by Mr. T. Roberts's, "Is Baby asleep?" (70); Mr. J. Morgan's "Kiss! Baby" (76); Mr. A. F. Patten's "Hide and Seek" (108); Mr. W. Hemsley's "Models criticising" (127), and many another cognate episode. Lovers and love-making are more powerfully than pleasantly illustrated in Mr. V. W. Bromley's reading of "Sir Lancelot and Guinivere" (152); by Mr. E. Radford's kneeling devotee making a rather ambiguous request, from "Waller's Girdle Song" (300),—

> "Give me but what this ribbon bound,
> Take all the rest the sun goes round;"

and by Mr. E. G. Girardot's "Lover's Gift" (331), amongst other instances; and a little more pleasantly, if not so powerfully, by Mr. J. C. Waite's comely damsel helped in the cogitation of a sweet address by her dicky-bird, "What shall we say?" (27); by Mr. W. Gush's similarly perplexed young woman, "What shall I say?" (57) with no such assistance to the tune of her answer; and Mr. Haynes King gives some insight to the difficulties attending such a matter by the careful study and neat performance shown to be necessary in the production of "Katie's Love-letter" (94). Mr. C. Bauerle's child in rapt admiration of some "Flowers" (105) will be thought by many to be the gem of the collection, it is so thoroughly free from pretentiousness, so agreeable in colour, and so solidly painted. A brother and sister "Coming over the Heath" (220) do not fully share the best qualities that characterise the single figure. Mr. J. D. Watson works as easily with oil-colour as he does in any other medium: a weather-worn veteran lighting up for "A Quiet Pipe" (122) is a small but telling proof of how conspicuous real worth may be sometimes. He has also helped Mr. M. Fisher to very good purpose, for the "lassie" paying "A Friendly Visit," with a lapful of vegetable offerings, to Mr. Fisher's capitally-painted sheep, adds very much to the completeness of one of the best pictures of its kind here; though Mr. T. F. Wainewright's cattle, "By the River-side" (41), is a very admirable work; and Mr. J. S. Noble, jun., may rank amongst the better depictors of animal life, if his pointers grouped during "A Rest at Luncheon-time" (188), and keeping watch over the dead game, be only an ordinary example of his skill. Talking of dogs, Mr. C. S. Lidderdale introduces such a beautifully ugly "pug" to do duty in his version of "Beauty and the Beast" (165), that the fact being a patent one, putting beyond all doubt of a pug's hideousness constituting its most precious charm, it is only by the absurdity of the supposition that a suspicion of some confusion for a lady as to which was the beast and which was the beauty could exist, is saved; however, the improbability is so monstrous, for the fair sex, as a body, are too ready to acknowledge superiority in any member of it, so long as the delicacy of self-consciousness does not stand in the way, and Mr. Lidderdale's Beauty has claim enough to the denomination by the steps he has taken to elevate her, so that identity, after all, must be easily settled. In any view taken of the subject, it is a very cleverly executed picture.

It is rather difficult to understand whether or not the one reclining lady of the two wooing the invigorating influences of "Sea Breezes" is an invalid, or if she who is upright stands in just as much need of restorative assistance. The wind is blowing its best, and the principal aspiration of the artist, Mr. G. E. Hicks, would appear to be literally involved in illustrating the definition of difference between hair and air. The ladies are handsome and ladylike, allowing for the effects of such rough treatment by the rude element, and the wish that they may be benefited by such a gale as they are facing is "father to the thought" of what a deal of fatigue the labour of combing and brushing will cost them presently!

"Presents from Japan" (13), by Mr. R. J. Gordon, of technical merit; "A Royalist" (102), and "A Puritan" (142), both female figures, by Mr. W. H. Weatherhead; "Happy Recollections" (168), by Mr. S. B. Clarke; "A Fair Critic" (179), very boldly and forcibly painted by Mr. J. Gow; "A Daughter of Italy" (196), by Miss M. Backhouse; "The Glass of Wine" (264), discussed by an Elizabethan cavalier, very clearly and closely finished by Mr. J. W. Chapman; "Little Miss Prim" (282), by F. H. Potter; and "The Lotus Gatherer" (501), by Mr. J. Bouvier, are some of the most noticeable items selected from scores. The landscapes do not contain amongst them so many attractive works as so numerous an assortment would reasonably promise. Mr. J. Danby's "Boulogne Sands," under a gorgeous sunset sky (3); Mr. G. Cole's "Evening,—the Timber-drag" (101), a favourable specimen; "In Chancery" (52), by Mr. C. A. Calthrop; "Port Newydd, on the Usk, South Wales" (58), by Mr. J. Peel; "Twilight" (110), and "On the Thames near Marlow" (235), by Mr. W. Gosling; "A Calm Sunset on the Coast" (143), very pure in colour and truthful in appearance, and "A Study of Moonlight" (254), both remarkable performances by Mr. H. Moore; and "Near Devonport" (159), by Mr. H. T. Dawson, jun.; "A Valley in the Gower Country" (176), by Mr. G. Sant; "Near Hampstead" (272), by Mr. A. Maclean; and "Peatmoss,—Loch Awe in the Distance" (303), by Mr. D. Cameron, deserve exceptional notice.

The water-colour drawings by Mr. E. M. Wimperis of "Welsh River" (430), "A Welsh Moorland" (461), and "An Autumn Afternoon" (577); "Carrying Corn in Kent" (375), by Mr. J. Price; "Porth, Towan, Cornwall" (382), by Mr. L. P. Wood; "Worcester" (383), by Mr. W. H. Jobbins; "Slipper-making near Rouen" (396), by Mr. J. B. Surgey; "On the Tees at Rokeby" (427), by Mr. A. Powell; "Cornfield,—Evening" (464), by Miss M. I. Grant; and "On the Torridge, North Devon" (465), by Mr. H. Sandercock; "Moonrise on the Thames" (589), by Mr. G. S. Walters; "St. Urban, Troyes" (608), by Mr. Wyke Bayliss; "Fittleworth Common" (646), by Mr. T. J. Soper; and "Old Houses at Whitby" (663), by Mr. C. Earle, give a very fair taste of the quality that does not predominate in this department.

ON PROFESSIONAL *ESPRIT DE CORPS.**

AND now we come to the most interesting point of the whole inquiry. Turning to our own profession, we are now to inquire how we stand in relation to this very important subject. Let me ask (and in putting the question I am happy to admit that in not a few instances the answer would be what we should wish) does *esprit de corps* do for us anything like what it does for the soldier, the lawyer, and the doctor? And if so fine a profession as ours fails in some respects to command the social position which is generally accorded to the members of some others which I have named, is not our own deficiency in *esprit de corps* at the root of much of that failure? For, after all, we *are* somewhat

* By Mr. T. Roger Smith. See p. 940, *ante*.

deficient in this temper of mind, and we do need to cultivate it. Whenever we meet an architect is it a matter of course that he is a man with the interests of our profession at heart, and bearing goodwill to all its members, our respectable selves included? In any case of difference, disagreement, or dispute are we quite certain that no member of our own body can ever be found to uphold against us that which he knows in his heart is unprofessional and unfair? In any emergency or difficulty should we be wise, would it be safe for us, to call in, without a thought about anything beyond his practical experience, any architect who could be named as skilful? Should we be quite secure that our professional brother could not in the nature of things make an attempt to dislodge us, or would not listen to overtures which have for their object to substitute him for ourselves? Do we all expect that in a competition of architects all the perspectives will be fair, and all the estimates honest; that no one will divulge his own motto, or tout for influence, or disparage the drawings of his rivals? Nay, let me come nearer the root of the matter, and ask whether we ourselves feel that beyond our duty to our clients, there is a wider duty which loyalty to our profession and our brethren imposes on us? Are we even more anxious for the sake of the profession than for that of the individual employer that every step in our professional career shall be above suspicion and beyond reproach?

I have already indicated by implication what I should suppose your reply to these questions would be if you made one. I fear we should all of us admit that if things are not as bad as they might be, they are yet far enough from being all that they ought to be among us. When a true and noble *esprit de corps* has taken full possession of our whole body; when each practitioner has a proper professional temper and a fitting professional pride, rules for the regulation of practice and the guidance of competitions will almost make themselves. A successful competitor will then receive the congratulations and support of those professional brethren, who in less happy days would, perhaps, have written damaging letters to the *Times*. When that time has fully come, we shall cease to hear complaints such as from time to time reach this Institute; we shall then also probably lose the edifying spectacle of a battle of styles and views, and an advocacy of the architect-working man, such as fill the journals with articles which have for the general public little interest beyond that which household strife always arouses in the bystander.

We meet, if we have any object beyond that of spending a pleasant evening and enjoying an interchange of opinion, to strive to raise the general standard of our profession, and to secure that the conduct of each member of it towards the others shall be equitable and fair. This can be better done by fostering a proper spirit than by attempting to lay down hard and fast lines, and guides within which we are all expected to run. Not that our rules may be superfluous or arbitrary, but they will only work well when men observe them spontaneously and cordially. Let us then see how we are off for professional *esprit de corps*.

Architects are, in the nature of things, so circumstanced as to be deprived of several of the accidental advantages which have been noted as tending to promote professional feelings in other callings. We are, unhappily, but few of us university men; if any of us have come from the same public school, it is a mere chance; we have no Haileybury, or Woolwich, or Sandhurst; we walk no hospitals, we draw in no *atelier*, and we pass no examination to admit us to practice; nor are we trained in colleges; with the exception of those who attend the lectures at King's College or London University, or the classes at the Architectural Association, there are few chances of studying together for us while we are learning our duties. We are generally brought up in offices where one or two, or some other small number of pupils, associate with a somewhat larger number of clerks. This method has some great advantages; but the promotion of a large-minded *esprit de corps* is not one of them. We are not much better off when we begin to practise; there is little to throw us together, much to keep us apart. A brother architect in the same neighbourhood, or with the same connexion, especially in a country town, may be a dangerous rival; at any rate, there is a strong temptation to wish him out of the way, and dislike him accordingly, with no circumstances to lead us to overcome it. Then come the jostling in the race of life, competitions where all but one must be disappointed, and where the successful man will have to run the gauntlet of all those who have failed. Nor do we, like the medical men, often consult one another, or work together: the association of a local architect with a leading one (like the resident and the engineer in chief of a railway) is a thing never so much as thought of. We do not even so uniformly admire the same things or work in the same taste as to be quite free from the temptation to disparage one another's performances. These are some of the unfavourable circumstances in our case, and they result in its being impossible for us to be considered a compact well-defined body of men, a misfortune which is very considerably aggravated by the fact that there is no kind of fence round our practice: any builder, decorator, or auctioneer may call himself architect, if so it pleases him, and though the nucleus of the profession may be very clearly seen, and indeed may be considered as present in this room, its edges are extraordinarily ragged and indefinite.

Notwithstanding such drawbacks as these, there are, however, many circumstances which would render it not unreasonable to expect some *esprit de corps* among us. First and foremost is the fact that although the boundaries of the profession are ill defined, the actual practice of an architect competent to carry on his business with success is a very definite and distinct matter, requires considerable technical knowledge, long experience, and a peculiar association of artistic, mechanical, and business powers, not easily broken in to run in harness together; and thus it comes to pass that an average architect is really very much educated by his work into a member of a special class, having a wide space between him and any other people with whom he mixes. We are, I believe, more closely assimilated than we seem, and, like elements which have a chemical affinity for one another, we only require to be properly brought together, and we unite readily enough. If, as it appears, the link which connects us together, though not very apparent, is very real, there is no doubt that in its nature it is one calculated to stimulate *esprit de corps*. Our profession is interesting enough to rouse a real liking in the minds of most men,—in some a passionate attachment. It is one of which any man may be justly proud. There is something to kindle enthusiasm in the thought of being, in however modest a degree, made one of the community to which belonged those illustrious men who from the east to the west have covered the earth's surface with the only tangible landmarks that a nation's progress can leave behind it. If the great designers, known or unknown, of the noble buildings of the past form a distinguished ancestry of artists with whom it is an honour to be connected, there is in addition much that is delightful both in the study and the exercise of the art. In no profession is there employment for a larger range of powers and faculties, in none is there so enduring a record of faithful, well-executed work; and no profession has so little to do with the griefs and miseries of men's lives. I am not, of course, blind to many drawbacks which exist, nor insensible to the want of fortune to which the architect must submit, or to the annoyances and vexations that beset his practice; but I think, even when difficulties are at their worst, very few of us would be willing to change places with a lawyer, or a doctor, or a statesman, if he could. There is, then, in the nature of the profession itself a strong basis for *esprit de corps* to rest upon. As a matter of fact, there is also a very great tendency in architects to fraternise with one another, when circumstances bring them together. No doubt it is more or less so with men of other professions; but of our own it is easier to speak from experience, and my own experience has always been that whenever I found an architect I found a man who was very ready to become a friend the moment we had established the existence of the professional tie betwen us.

Much as we decry them, we might have a means of strengthening this friendly feeling, instead of weakening it, in our competitions. These, rightly managed, would do something to draw us together, paradoxical though it may appear to say so. Men who, like barristers, are constantly in the habit of measuring their strength against each other in open fight are much more likely, if the fighting be only fair, to conceive a respect for each other than men who never meet in any way. Once make competitions fair, and you would render competitors friendly.

Perhaps, however, the main source of a healthy *esprit de corps* has lain (as certainly the only chance of giving to it the stimulus and the direction which it requires will lie) in the existence of organisations like this Institute, the Architectural Association, and the various local societies. And among other chief reasons for this being the case is the fact that these societies afford a channel for the exercise of that personal influence which seems to have more power than anything else to rouse enthusiasm. Since we have had a professional president here we have gained immensely in *esprit de corps*; and I firmly believe that what has been gained in this way has been secured, not by the influence of an impersonal entity, consisting of a council and a charter, a subscription-list and a library, but by the personal leadership exercised by a Cockerell, a Tite, a Donaldson, or a Wyatt. Long may the traditions thus happily inaugurated continue to act with constantly-accumulating power on the body at large.

We meet in this room, as the students meet in the room downstairs, on a common footing, and for common objects; and what we do here renders us more jealous of the honour of the profession, more determined to support one another, and more ready to co-operate for common purposes than we could possibly be otherwise.

A most important and gratifying proof of the genuineness of our *esprit de corps* is encountered by every one of us who is engaged in practice in London, as often as he comes into contact with a brother practitioner belonging to this Institute on matters which involve personal negotiation. You meet, perhaps, on a matter in which the interests you represent and those which your colleague represents are at variance; yet the result will be (at least, my experience has been so, without one exception) that you are met in a spirit of friendly fairness which renders the dispassionate discussion of the business easy and possible. If a solution can be arrived at, it is found; and whether it be or no, the negotiation is conducted as between men who understand each other's circumstances, can enter into each other's difficulties, and are honestly desirous, so far as may be possible without sacrificing a client's interests, to be of assistance to a professional brother. But though so much has been accomplished among the members of this Institute, there remains, even here, more to be attained; while among those members of our widely-scattered body who do not belong to us, or who seldom mix with us, there is great need of the promotion of *esprit de corps*. It is, of course, impossible to say that this or that definite thing ought to be done; but it is easy to see that an increase in that spirit will follow every accession of dignity, honour, or importance which the profession receives, or the diminution of any drawback or defect in consequence of which it may be disparaged; and notably will correspond to every extension of the link which binds practising architects together. One or two speculations as to what may be practicable in these directions may, perhaps, appropriately close our inquiries.

Every accession of dignity or of importance in public estimation to our profession will, as I have said, increase *esprit de corps*, and on this account, as on many others, it behoves us jealously to watch how we stand with the public, and to secure for the profession all the honour and credit which are its due. Now, without entering at any length upon this subject, I am inclined to doubt whether there is as much harmony between public feeling, as regards matters architectural, and our own as there ought to be. I cannot help the notion that we and the public are somehow a little out of tune. Could we establish a better concord, it would help us. I think, as one simple instance of what I mean, that, building, as we mostly do, for business men, we are habitually too lax in the business part of our undertakings. We look upon extras, for example, as an evitable attendant upon building contracts. Were sufficient forethought exercised, and were we firm enough in requiring liberal preliminary estimates to be passed, and sufficiently large money provisions to be introduced, extras might disappear almost entirely from our practice. It would require a certain amount of energy and determined will, but the result, if it became general, would be to raise the value of architects a hundredfold in the eyes of the commercial world.

Again, men run about with sketches and designs, making themselves and their work cheap, not to mention the mass of competition labour

foolishly thrown away. All this discredits the value of an architect's services. Can we do nothing to stop this? Mr. Briefless does not go round Bedford-row touting for briefs. He might very likely get some if he did, but it would be unprofessional. Can we do nothing on our parts to keep up the public sense that our work is the work of educated, intellectual men, and is not to be had cheap, or for nothing, by enlisting professional *esprit de corps* on our side? Again, there can be no doubt that we do our professional standing a great deal of harm by disparaging one another. There can be no objection to strong things being now and then said in friendly ears; but to blurt them out before the public, when they really only represent half-truths, and the speakers do not mean them to be taken for what they will be supposed to mean by the hearers, is suicidal, and very different from that healthy, discerning criticism which is useful to art. Lastly, might we not really, as a profession, take some opportunity of expressing appreciation of great and difficult works when they have been successfully accomplished? We show a good many tokens of respect to the men whose careers and executed works demand our recognition; could we not, now and then, in some way, show our appreciation of an individual great building, even if it was only by hanging up the drawings of it in this room, and so showing that we take an interest in the undertakings of our colleagues. No civil engineer in charge of an undertaking of importance is willing to give an account of it to the press until he has done so at his Institution. How far this unfortunately is from being the custom among us is abundantly proved by your having to listen to a discussion of an abstract subject at the very beginning of the session, instead of papers on the important public buildings, cathedral restorations, and other large undertakings of last year, of which, most unfortunately, no particulars have been, or probably will be, furnished to this Institute. Let it be a matter of course to bring forth every really good building in this room, and you will create a kind of honourable distinction for good architecture, which will help in no small degree to advance what we desire to promote.

There are, however, some abuses which must be done away with, and some defects which must be remedied, ere *esprit de corps* becomes pure and powerful, even where it exists.

To begin at the beginning of all practitioners; the man who has a proper enthusiasm for his profession will be very careful what pupils he takes. There is some probability in the case of each pupil that he may become a practising architect; in every such case there is the intention that he shall be so. Every man who is asked to take a pupil ought to put this question to himself,—"Is this boy, with the education, and the capacity and the surroundings that I find him now to have, likely to prove, after a certain number of years, a cultivated, upright gentleman, with a sound knowledge of his profession, and fit to do it credit by his practice and his character?" In very many cases, an inquiry of this kind, honestly conducted, ought to lead a man to decline an offered pupil; and till we are every one of us prepared to do this and let the premiums go, whenever it is clear to us that the youth is not likely to do well, we cannot be said to have a healthy *esprit de corps*. A further step will be gained when it is a matter of honour with those who are really courted, who have, to use a homely figure, the key of the professional front-door in their keeping, to permit only the entrance of men of good general cultivation. There is no reason why architecture should not have a very large proportion of university men among its practitioners. As a matter of fact you may count the B.A.s and M.A.s on your fingers. And I do not think it too much to ask of those who can obtain high premiums, and are able to pick and choose, that they should stand out for a university education in their intending pupils.

Again, when the pupil is accepted, it is sometimes forgotten that he is a future colleague, and is to be fitted honourably to pursue our profession; and that it is not enough, with this aim in view, to make him trace and copy the specifications. A healthy *esprit de corps* will lead a man to feel that he has a duty to perform to the profession, as well as to the pupil, in this matter. It would also tend to raise the tone of scholarship were the present unfairly short term of pupilage lengthened. When men were apprenticed for seven years there was more useful knowledge communicated to them than now, when they go for three, or even two. I would suggest that four years ought to be the shortest term of pupilage, and that five years would be a more suitable time; and were this reform carried out we should in five or six years see a marked improvement in the young men advancing towards the threshold of responsible practice.

Again, it seems pretty obvious that we shall not be quite as we ought to be till we have put some sort of fence round ourselves, and made a gate which no one can pass who has not a competent amount of elementary knowledge; and till we have established a tribunal with power to turn out any one who disgracefully misconducts his professional practice. This I find a peculiarity of all the professions where the *esprit de corps* is strong; and nothing is more natural than that it should be so. If the title "architect" is to become a kind of passport to a man from one end of England to the other, as that of barrister now is, there ought at least to be the certainty that an architect's attainments and his character are known not to disgrace that title,—a matter quite distinct from placing any limit to originality, or even eccentricity, of design, or from interfering with the student's licence to restrict himself to one style if he desires to do so.

Lastly, when *esprit de corps* has sufficient power to be real force in our profession, those things which it is understood men ought not to do, *will not be done*, and such a body as this Institute will not for a moment permit them to be attempted. I hope I am not using too much plainness of speech when I say that this is not so now. It is generally believed, for example, that persons practising as architects, some of whom might possibly not be found to be beyond the reach of this Institute, are in the habit of receiving payments in respect of works from the persons towards whom they ought to hold a perfectly independent position; yet probably it would be thought rather unfortunate if a well-authenticated case of this kind were brought forward to be adjudicated upon here. If *esprit de corps* were strong among us, such a malversation would be very rare, and when it was heard of would be hunted down and traced out, and the offenders exposed with zeal, every man feeling that till this were effectually done, he, and the profession he belongs to, were sustaining damage and disgrace. In short, the feeling of its being necessary to keep up the honour of the profession whenever this or any other misconduct tended to tarnish it, would be keener than it now is. Men would, I think, even carry such a feeling into their artistic work, and would make it an additional motive for abstaining from the use of base materials and bad construction, and perhaps even from a style of architecture which they were pledged to oppose, doing these things for the honour of the profession as well as for their own credit. We should then be spared some at least of the sweeping condemnatory remarks which architects of one school have been known to permit themselves to make upon the works of another; and we should possibly even have in some rare instances the phenomenon of an architect admitting that there might be some merit in an architectural work which he did not quite understand, and which he felt unable himself personally to admire.

Here, where, thanks to the wise provision of those who founded this Institute, we are to a large extent sure that each member is a worthy brother practitioner, there exists, as I have tried to show, a very fair amount of *esprit de corps*, and as a result remarkable good-will prevails between the members. Why, then, cannot the whole profession be like one large Institute? Nay, why could not the scheme of the Institute be so enlarged that it should be to our profession what the Colleges of Surgeons and Physicians are to the medical, or the Inns of Court to the legal? If any actual step is to be taken, any one thing to be done in order to bring about an increase in *esprit de corps*, it is here, I believe, that the work must be performed; and it would be a lasting honour to this Institute, and an incalculable benefit to us all, if the recent Conference were to prove the germ of some simple but comprehensive scheme for affiliating every architect who is competent and carries on his practice respectably to this body, giving him a title and a position worth holding, and which it should be for him a misfortune and a disgrace to lose. The time may be distant when this shall be realised, or it may be nearer than we think. One thing is, however, certain: every step which can be taken to promote the general advance of the profession if it be but well judged, will benefit each individual member; and every proposal tending in that direction deserves to receive the best help which each of us can afford. It was not, however, I beg to repeat, in order to suggest any one or other definite act that this subject was brought forward. It was with the simple view of bespeaking for professional *esprit de corps* a place, such as the importance of its claims seems to demand, among the subjects which shall be here cherished and kept constantly in view. Let us be alive to the nature of the spirit animating us, as well as to the shape of our acts. It is well to stimulate research; it is well to originate combinations; it is well to concert action; in short, it is well to do the best we can to build ourselves up into a homogeneous, a shapely, a well-organised body. But let us remember that a body needs to live. An organised body without a spirit has nothing before it but speedy decay. Whatever else, therefore, is forgotten or remembered, let us not forget, I beseech you, *l'esprit du corps*.

SIR WILLIAM TITE.

ON Tuesday last, at a meeting of the Bath Town Council, a number of the admirers of Sir William Tite, who is the senior member for Bath, and who has now represented the city for seventeen years with great satisfaction to all the citizens, presented the corporation with a life-size bust of that gentleman, as a mark of respect for him and admiration of the manner in which he has represented the city. The bust is of statuary marble, and was executed by Mr. Theed, R.A.

The presentation was made by Mr. Alderman Murch on behalf of the subscribers, and he, in doing so, dwelt in eulogistic terms on the public life and munificence of Sir William Tite, and said it was thought by the subscribers to the presentation that the city would like to have some permanent memorial of its senior member. The respect for Sir William throughout the city was so great that persons of all politics were struck with a life which was so generous, valuable, and eminently useful, and had, therefore, freely subscribed for the bust. To appreciate a work of this kind it was necessary to have two things,—a favourite subject and a high-class artist. In each of these points they had been very fortunate.

Our esteemed friend and colleague is certainly earning "golden opinions" from all sorts of men. May his shadow never be less!

NEW BUILDING FOR THE BRITISH MUTUAL INVESTMENT COMPANY.

A PROMINENT block of buildings has just been erected in Farringdon-street, for the British Mutual Investment Company. The structure has two main elevations, one in Farringdon-street and the other in St. Bride-street, with another narrow elevation at the angle of the two last-named streets, which contains the chief entrance to the company's offices, and facing Ludgate-circus. The materials used in the construction of the building, which is in the Italian style of architecture, are the Fareham red brick, with stone facings. The Farringdon-street and St. Bride-street frontages are each 60 ft. in length, the building being also 60 ft. in height, to the ground level. There is a basement and also a sub-basement, and, including these, the building altogether consists of six stories. The ground-floor windows are segment-headed, the first and second stories having circular-headed windows, whilst the third story windows form a continuous arcade, and are mainly of stone. Above the third story is a cornice and stone balustrade, behind which are attics. The housekeeper's apartments are at the top of the building, the roof being a flat one, formed of asphalte on Pilkington's patent. The main ground-floor entrance facing Ludgate-circus is pedimented, and in the Farringdon-street and St. Bride-street frontages there are niches for statues. The ground-floor portion of the building will consist of the Board-room and general offices of the company, and will be exclusively devoted to the company's business, the several stories above being let for offices, as well as the sub-basement, the basement consisting of vaults, which will be occupied by a wine-merchant for storage purposes, and the entrance to which, as well as the entrance to the several offices, will be in St. Bride-street. The estimated cost of the building, exclusive of the land, which is held on lease from the corporation, is 6,000*l*. Mr. Henry Currey is the architect, and Messrs. Brown & Robinson are the contractors.

THE HOUSES OF THE LABOURER IN SOMERSETSHIRE.

Carrying on our observations,* we have been inquiring as to the homes of the agricultural labourers in Chinnock, Chiselborough, Montacute, and Stoke-sub-Hamdon, and we will now endeavour to describe something of what we have seen or learnt in these places. We give views of a couple of cottages by the roadside in Chinnock. The only portion of these cottages now inhabited consists of two rooms, a kitchen below, and a small bedroom above, whose windows are in the gable-end, with entrance-door up a passage. The height of the kitchen is about 6 ft. 3 in.; breadth, a little over 9 ft.; and length, 13 ft. The bedroom has a ceiling broken through in three or four places, through which the rain from the thatch above trickles down the walls. It is only in the central part of the bedroom a person of ordinary height can stand upright. There is hardly 3s. worth of property in the sleeping apartment in the shape of bedding. An old tick, with scarcely any stuffing, and a few rags, composed a bed, spread upon the floor in one angle of the room, and a wretched frame,—the caricature of a bedstead,—occupies another corner of the apartment. A few winding steps, scarcely sufficient in breadth for one person to pass up, lead from the kitchen to the bedroom, the sole sleeping-apartment of an aged mother of eighty-four years, an unmarried daughter of forty, two children, and a grown girl, who acts as a help in gloving and other work. The aged mother is an imbecile, and is otherwise afflicted. The average earnings of the household throughout the year could not easily be determined. Sometimes 5s. a week, sometimes 7s., at other times 2s. 6d., and, at times nothing. For these two rooms, the last corner of the two cottages which now affords a refuge for miserable creatures, 3l. have lately been obtained for the year's rent. We must be just to the landlord, who is a noble lord to boot: he allows the use of another small room on the opposite side of the entrance-passage, which is used as a workshop when glove-making is brisk; but we are in doubt whether the additional accommodation is wholly free or not. Our informant here was interrupted in his survey of these and the adjoining cottages by the owner's bailiff, who challenged his authority, not only to look within, but to sketch without; so the pursuit of knowledge was one under difficulties. Rags and semi-starvation mark the chronic condition of the people here and in the adjoining cottages along the roadside in the village of Chinnock. In many of the dwellings there is only one sleeping-apartment, where the labourer and his wife, with families varying from five to eleven, the infant and the marriageable daughters or sons are all huddled together, even admitting there is no lodger. The rents vary from 1s. 3d. to 1s. 6d. per week, or more, but in the latter case there are, besides the kitchen below, two rooms above. The kitchens are flagged with rough slabs of Hamhill stone, as they are all round the localities we traversed; but though we entered several of the homes we failed to find one in decent order; sunken here and raised there, and fractured into numerous fragments, showing hollows capable of holding no small quantity of water. In times of heavy rain and flood, many of the kitchens present the picture of a number of miniature lakes or pools. As to "conveniences," we found instances where one place of accommodation had to meet the wants of a whole row of cottages.

In the village of Chinnock, the farm labourer's wife and daughters add a little at times to the income of the household, by glove-making; but it is a hard-earned and miserable pittance, one individual often spending from nine to twelve, and often fifteen, hours in earning 9d., and at times even as little as 6d.

Passing along from West Chinnock, we soon enter the ill-fated village of Chiselborough. No external sketch of the habitations in this place could give a complete idea of the state and condition of the interior, or the deplorable life of the labouring inhabitants. This village is the home of an unhappy race of human beings whose frightful afflictions are unquestionably attributable to the place and circumstances. Several of the inhabitants are negro-like in aspect, save as to colour, misshapen not only in head, but in body, thick lips and flattened noses, heavy, and bloated,—in a word, altogether twisted and deformed in person. The worst cases are grinning, paralytic idiots. The maladies that these unfortunate creatures suffer from are goitre and cretinism. The existence of such a place as this is a disgrace to our boasted civilisation. Chiselborough is situated at the bottom of a rather narrow valley, and it is encompassed on three of its sides by towering hills. Being enclosed thus, it is robbed somewhat of thorough ventilation, and the temperature of the village is possibly milder than that of other Somersetshire villages. This, in itself, would not create the maladies; but coupled with the immemorial state, housing, and surroundings of the inhabitants, it may go a great way in perpetuating them. The houses, cottages, and other dwellings constituting the village form lines of irregular terraces, one over another, along the sides of the hill. The eaves of the roofs at the back of many of the dwellings are nearly on a level with the sloping hill-side, consequently it may easily be imagined how they stand in regard to the drainage of the hillside above them. A few inches below the surface of each floor must exist an eternal dampness, and not only dampness, but pent water. Where attempts have been made to build cottages with their fronts to the hillside and their backs towards the public road, a sort of fosse had to be sunk, a few feet wide, to give liberty of entry through the doors, otherwise there could be none, except through openings contrived in the roof. In times of heavy and continued rain the natural outfall of the drainage of the hillside is the floors of such cottages. Further, year after year, the contents of cesspools have been allowed to sink into and saturate the soil; the foul drainage in connexion with one set of houses percolating through the soil down under the walls of houses below them. The wells and other means of water-supply for the inhabitants in the lower portion of the village suffer necessarily from the foul filtration we have been describing.

The appearance of the cottages in Chiselborough, as well as in West Chinnock, externally, is respectable, compared with their construction and accommodation within. Blackened, naked joists form the ceiling in the kitchen; a transverse beam, in many instances, supports these joists in the centre, thereby lowering the height of the room, which, independently of this obstruction, is dangerously low. The plan and sketch of bed-room given in our last issue are applicable, in many cases, to the cottages in Chiselborough, Montacute, and Stoke, with this difference, that the creaking stairs or ladders are more upright, and there are a greater number of risers. Hand-rail or protection there is none, and the edges of some of the beds above are within a foot or two of the well-hole or opening, so that a child creeping out of its bed upon the floor may have at any moment its brains dashed out on the stairs or the flagging in the kitchen underneath. The fireplaces in not a few of the cottages we entered are as primitive in form as any the fourteenth century could produce. A few loose bricks, two or three in height, form the three sides of the improvised grate upon the hearth. A pot or kettle is seen suspended from a chain and hook, and a few rotten brambles, gathered in the roadside ditch, constitute the fuel. Only a few days ago a poor creature was marched off two or three miles to the residence of the local justice of the peace by the village constable, who charged her with picking up a few rotten windfalls from the trees. Had she not committed this grievous offence, she and her children might have had to eat a raw swede for dinner. In this the first week in December we find many hearths in which the fire has gone out, for fuel in the shape of wood is scarce, and coal can only be had in a sixpence-worth at a time, and then only when all the family are employed. The family is very well off indeed when it can afford to purchase a hundred-weight of coal; and when the cooking is done, a piece of stick supplies the place of the coal, which has to be economised for Sunday's use particularly. The ordinary farm-labourer gets from 9s. to 10s. a week; the ploughman and carter from 10s. to 12s. Not long since the wages of the labourer were from 8s. to 9s.; but last June, in consequence of a revolt, the wages were raised a shilling; but the two pints of cider previously allowed were stopped. No London labourer or beggar would drink this wretched stuff, which is specially brewed for the field-labourers, and which is nothing more than the final pressing of the apple-pulp flooded with water, with the addition of the skimming or fermentation from the first brewing. The lees of the exhausted casks used by the farmers are sometimes added. We tried to drink a wine-glassful of this liquid to test the truth of what has been said in its favour; but we found it impossible to swallow the second mouthful. No vinegar that we have tasted was more sour. It is matter of wonder how agricultural labourers can get intoxicated on such abominable stuff. Yet this cider allowance is one of the boasted perquisites of the Somerset hind, and the farmers never forget to vaunt the gift. What a mockery of refreshment to the semi-starved, ill-clad, and worse-housed labourer! Female field-labour does not exist, either in summer or winter, to the same extent in the districts we are now describing as in other parts of Somersetshire. Taking a five-mile radius, with Yeovil for the centre, an intermittent employment at glove-making keeps the wives and grown-up daughters of the farm-labourers from the fields; but it fails, at the same time, from its precarious nature, to afford sufficient to keep body and soul together. It is a help, to be sure, when it comes, but it has the result of leading to the frightful evils of the overcrowding and huddling together in one room whole families, and often two or three families of the parent-stock. It is utterly impossible that morality or health can be preserved under such conditions.

In Stoke and Montacute we found some frightful examples of overcrowding in wretched rooms and attics, from which the blue sky could be seen above and the kitchen and its occupants below. Rotting rooftrees, bulged in, and decayed floors dangerous to tread upon, casements shattered or blown out altogether, and walls with a constant trickle from tile and thatch rusting their surface and coating it with an indescribable ooze. In a row of cottages lying at the bottom, or in the valley, at Stoke, a number of their inmates are in great want for lack of employment. The kitchens are cold, damp, and cheerless; and the bedrooms are destitute of any furniture save the miserable bedding which is strewn upon the floor, or gathered up in bundles in the corner of the rooms. One good or decent bedstead we did not meet with in any of the labourers' cottages we visited, nor a bedroom fit to sleep in, or in any way suited to meet the requirements of the inmates. Some of the houses were without back yards, and the places of accommodation were far between and in a filthy and overflowing state. As in Stoke, so we found matters in portions of Montacute. Here, in a thoroughfare called Middle-street, we visited a row of cottages backed against the churchyard. A few of them have had lately a wall built up at their rear about 6 ft. high, hiding the view of the graveyard from the under rooms, and allowing a space of about 3 ft. between the walls of the cottages and the churchyard wall. This space is the only backyard these cottages have. The level of the kitchen floors is some feet lower than the surface of the churchyard soil. There is an absence of all ventilation here, and the drainage of the graveyard, of course, soaks under the floor of these ill-conditioned dwellings, and, added to these evils, there is one place of "convenience" for five or six houses.

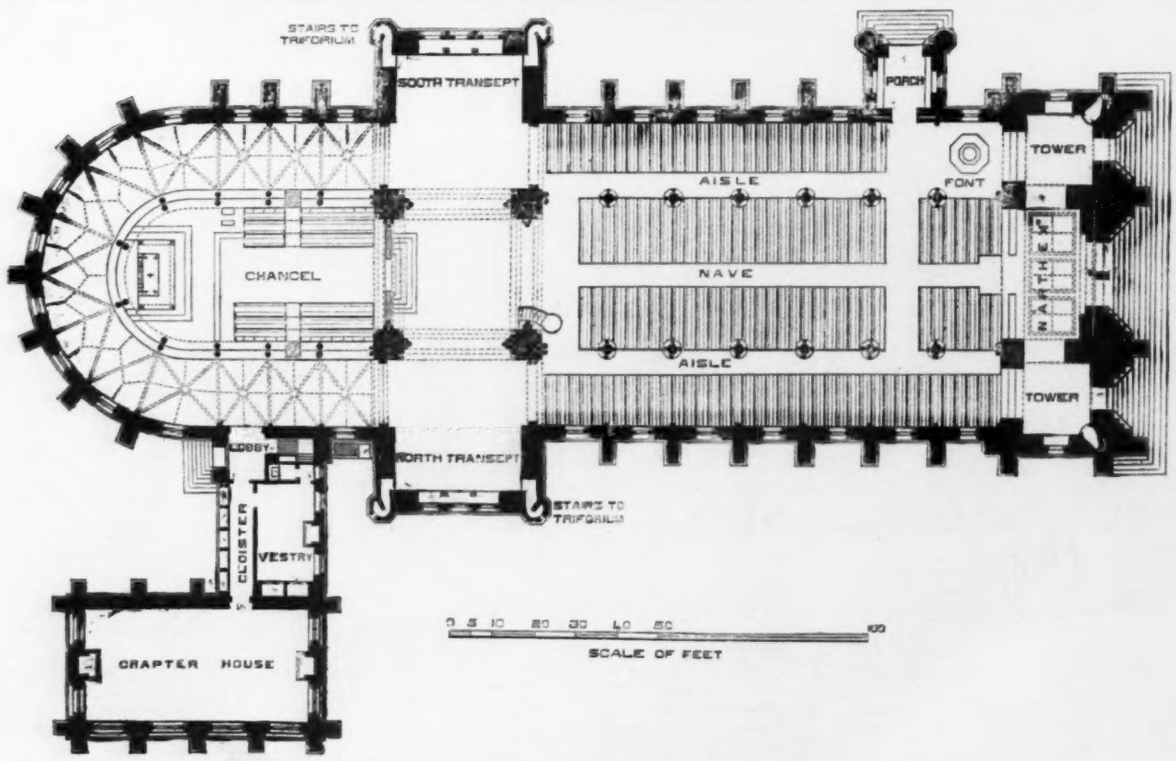
In each of these cottages and some further down the street there is only one sleeping-apartment, the ceilings of some of them are bulged in, the rain comes down the walls, and dirt and ill-health reign. As many as three beds, or "shake-downs" upon the floor, are in one apartment of about 9 ft. by 12 ft., with scarcely standing room, and the bedding is the sole furniture. On the opposite side of the street a similar state of things exists as far as relates to sleeping accommodation, the condition of roofs, ceilings, walls, floors, and places of convenience, which are all in a state of ruin and rottenness. There are surface drains in this village, but in times of heavy rain they are unable to carry off the water, which often floods the kitchens of the cottages in Middle-street and in other portions of the village. The sewage in one place passes along an open ditch, immediately behind a row of the cottages, and winds its way into the fields, where it is absorbed in the soil. Overcrowding exists to a great extent, the members of some families being sufficient for the occupation of three bedrooms instead of the one or two used. When death takes place in any of these cottages the living must either cook, eat, drink, and work in the presence of the dead below, or sleep in the one bedroom with the corpse above.

We can proceed no further at this moment, though there is still much to be told concerning the condition of the agricultural labourer and his surroundings in Somersetshire. We have no hesitation in adding that some of the worst cottages we visited are the property of Lord Ilchester and Lord Portman.

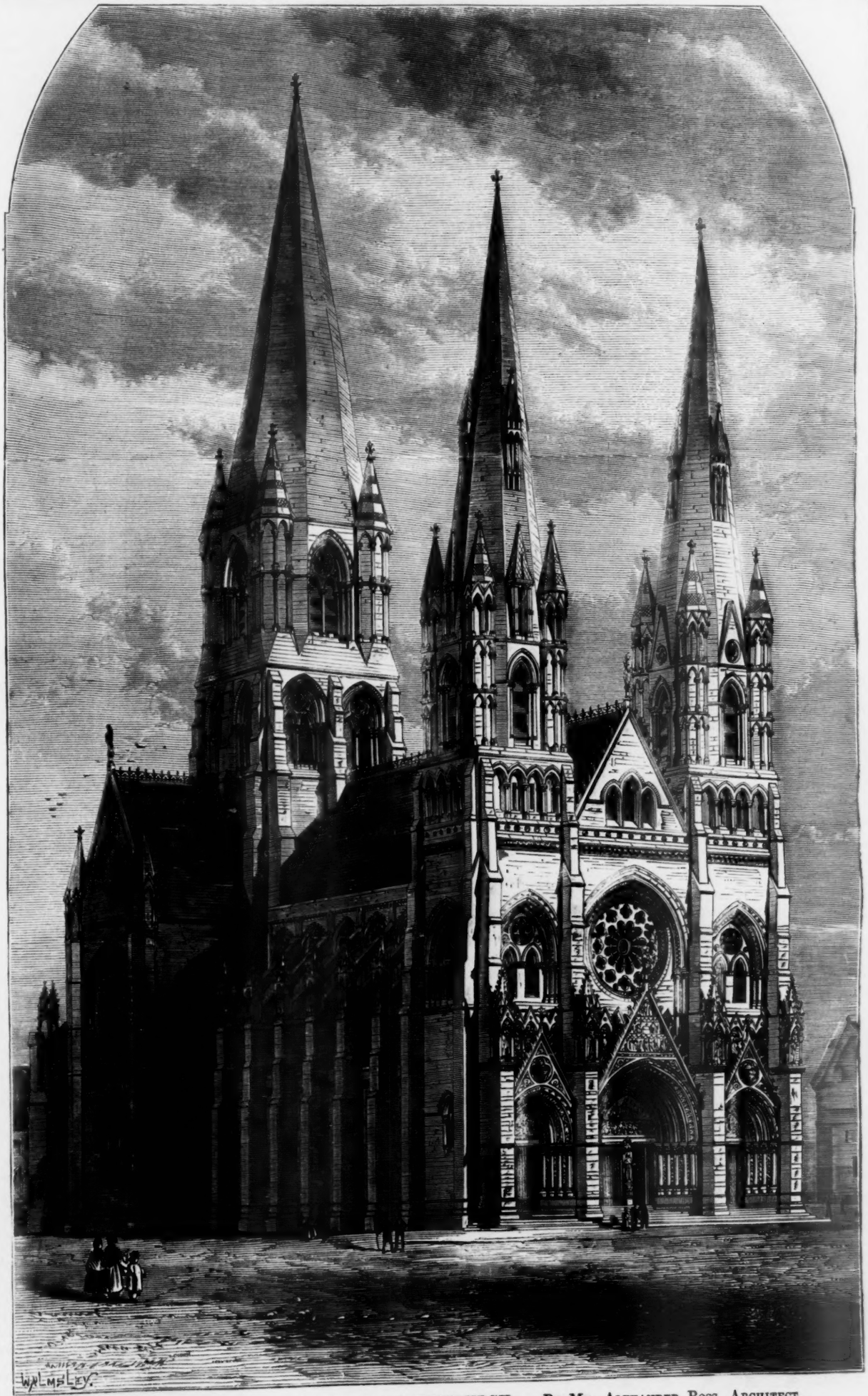
* See p. 937, *ante*.

LABOURERS' HOMES IN SOMERSETSHIRE.

Sketches in Chinnock, near Yeovil.



DESIGN FOR PROPOSED CATHEDRAL IN EDINBURGH.—*Plan.*



DESIGN FOR PROPOSED CATHEDRAL IN EDINBURGH.—BY MR. ALEXANDER ROSS, ARCHITECT.

DESIGN FOR PROPOSED CATHEDRAL IN EDINBURGH.

WE have illustrated the design for St. Mary's Cathedral Church, Edinburgh, submitted by Mr. Alexander Ross, of Inverness, to the trustees of the late Miss Walker, one to which when exhibited under the motto "Fidelitas," we awarded a considerable amount of praise in our review of the six sets of drawings exhibited in competition.* We extract a few paragraphs from the description forwarded with the design by Mr. Ross.

In arranging the plan, the comfort of the congregation was studied, and the architect endeavoured to provide for this by the introduction of a large narthex at the west end of the nave, entered through a triple porch, and by a roomy south porch into the south aisle (the necessity for subsequent inside wooden porches to prevent cold draughts being thus avoided).

The dimensions are stated to be as follow:—

	Length.	Width.
Length of nave	130 ft.	by 30 ft.
Length of aisles	110	,, 15
Length across transepts	100	,, 30
Length of choir	65	,, 30
Chevet or circumabient aisle		,, 15
Extreme length over all	265 ft.	
Width across west tower	82	
Width across transept	110	
Height of interior to groin	75	
Height to ridge	107	
Height of west towers	220	
Height of central towers	285	

It was proposed to seat the nave only with benches, the transepts being left clear for temporary seating by chairs or otherwise. The accommodation provided gave,—

Sittings in nave and aisles	1,082
,, transepts	336
,, choir	64
,, stalls	24
Total sittings	1,506

"The architect has adopted the chevet, or mode of carrying the aisles quite round the choir, thus giving free access from the vestries and chapter-house to all parts of the building, without crossing the choir or chancel, and also providing a very suitable space for mural monuments and brasses, while at the same time it would immensely improve the architectural effect of the building. The chapter-house opens off the north side of this circumambient aisle, and is approached through a wide corridor, lighted on the east side by a rich arcading, and bounded on the west by the vestries for the clergy."

The chapter-house is in the form of a parallelogram, 53 ft. by 26 ft., and capable of accommodating 150 people. The chapter-house was to be roofed with timber, and warmed by open fireplaces at either end.

The choristers' vestry is placed over that of the clergy, and is approached by a wide stone stair. By this arrangement a very large vestry, capable of accommodating easily forty choristers, is obtained, at a point quite detached from the other, yet adjacent.

A severe and comparatively early style of French Gothic has been selected, so as to avoid excessive detail and carving. The aisle walls have been kept perfectly plain, with the view of giving value to the richness of the clearstory, where the principal decoration has been concentrated, as being a leading feature outside and inside the building. It was contemplated to groin the ceilings throughout with stone ribs and chalk, or concrete filling, the latter presenting many very commendable features.

The walls of the building were designed to be in solid stone throughout, neatly dressed on both external and internal surfaces. This stone to be from the local quarries in the main; but in the columns and small piers a free use would have been made of marbles and native granites. Seatings in nave and choir in oak. The roof would be framed over groins, of red pine, boarded, and covered outside with Westmoreland green slates. Accommodation for the bells is provided in the north-west tower, and for clock in south-west tower.

The architect, after a careful estimate, is of opinion that the building could be well carried out for the sum indicated by Miss Walkers' trustees,—65,000*l.*

The Institution of Civil Engineers.—At the meeting of this Society on Tuesday, the 3rd inst., Mr. Hawksley, president, in the chair, the first ballot for the Session 1872-73 was taken, when forty-seven candidates were balloted for and declared to be duly elected.

* See p. 657, *ante*.

THE WARMING OF HOUSES.*

THE usual appliances for warming houses, setting aside comprehensive systems, resolve themselves into open grates, close stoves, and, under special conditions, gas apparatus and pipes for hot air or water for warming halls and passages.

For the whole of these certain general rules may be laid down:—

1. More cannot be got out of any one of them than is put into it. This is an axiom which, truism as it appears, is necessary should be impressed upon the public mind, which is apt to assume that engineering skill can multiply the heating power of fuel indefinitely. Thus, materials, like fire-clay, which are absorbent of heat and useful to prevent its escape, and retain it till needed, must abstract it first from the fuel before it can dispense it.

2. There are but 100 degrees of percentage. This simple fact should be kept in mind in considering methods of saving fuel, the inventors of which would otherwise persuade one that reference to coal merchants is a work almost of supererogation.

3. Some proportion of the heat generated must be expended in maintaining a draught in the flue, which is to carry off the products of combustion. This is by no means unprofitably lost since it promotes ventilation as well.

4. To minimise this proportion of escaping heat to as nearly as possible what is just necessary, and to take toll from it during its passage, as by warming the air which is to replace that abstracted by the flue, is the principal direction which efforts to economise fuel should take.

5. The products of combustion, being noxious, must be wholly removed, unless they can be chemically transformed. It is as barbarous to allow the fumes from gas to invade rooms, as it is to let the door be the sole outlet for peat smoke in an Irish cabin, or as it was to provide only louvres in the roofs of the halls of our forefathers for the smoke of their wood fires. The evil may be disguised, but the poison is the more insidious from being comparatively unfelt. The lungs of the living animals, as the leather of dead ones on the book-shelves, become corroded alike by its pernicious influence.

6. Warming and ventilation are so intimately connected that, although the latter is not my special subject upon this occasion, it is necessary that it should be kept in mind throughout while treating of the former. In fact, infusing heated air is a more economical and pleasanter mode of warming houses than direct radiation, and it is only by their capability of combining the two methods that open fires can maintain ascendancy over stoves, and it is only by uniting proper ventilation with stoves that they ought to be tolerated.

Lastly, all appliances should be simple and as self-acting as possible. This is essential for those intended for the use of the poor, whose treatment of them is of the roughest, and who neither need nor understand anything complicated. If there be a damper to be drawn, or a handle to be turned by them, neither will be drawn or turned except occasionally the wrong way, and if there be any cover or part that is loose, it is safe to be lost. At the risk, therefore, of some waste, their scanty fuel must be consumed in the most primitive manner possible. With somewhat less force the same caution may be given to those who design apparatus for the upper classes. Everything even for them should be as self-acting as possible, for though individuals may for a time take a fancy to an ingenious arrangement that requires personal adjustment, they tire of it in time; servants in their succession are not to be drilled into its use, and the thing is soon left to itself, and failure is the inevitable result.

To proceed to the several appliances themselves.

In the race to attain *economy* it must be acknowledged at the outset that close stoves completely distance open grates, and that they in their turn are as far ahead of all gas-apparatus as at present invented; and yet all have some advantages as well as disadvantages peculiar to themselves, to which it is worth giving some consideration.

In stores the heat from fuel can be almost wholly extracted and utilised, and even the little that escapes with the gaseous products of combustion is heavily taxed when its ultimate exit is by the few insignificant pipes, or diminutive chimney-stalks, which alone are suffered to peep above the roofs of houses on the Continent. English ideas of comfort will not, however, permit of the general introduction of the stove system into this country, and it is hardly to be desired that it should, unless great improvement be grafted upon that in vogue abroad, in which stuffiness is ever an accompaniment of warmth.

Our British privilege, however, of being able to poke the fire, although purchased dearly by its concomitant dust and the labour it entails upon servants, is not likely soon to be relinquished, and the luxury of an open fire is a fact which no theory can demolish.

Still, the grates in common use savour of barbarism, and much can and should be done to gain further refinement, economy, and immunity from nuisance. There is no need, for instance, that our roofs should be disfigured by the ugly and even comical flue terminals which Dickens satirised in one of his latest Christmas publications. We ought not to be subject to vexatious down-draughts in windy weather, nor to chimneys that smoke unless a door or window be open. Our drawing-rooms should not be invaded by sooty chimney-sweepers, and all ought not to have to scramble for a place near the fire in a room to be warm, nor when there to have to rotate like a smoke-jack to prevent being frozen on one side while we are scorched on the other.

Such evils are to be obviated by simple means, and yet ninety-nine out of every hundred Englishmen submit to them supinely if not patiently. Whole streets, occupied by men of means, have their skyline fringed with demon-like excrescences which tell a sure tale of internal discomfort. Such was the case with that in which my own residence is situated. When I took my house upon lease, though it had been well built by an eminent architect for his own use, yet, in common with all its neighbours, it displayed a grim array of tall-boys and tortuous contrivances as chimney terminals. All these I swept away at once, without inquiry, feeling that whatever might be needed, they certainly could not be. I then introduced an air-pipe to each fireplace through the floors, and, as I expected, found no smoky chimneys to complain of, though my neighbours still grumble at theirs, as I do of their futile and unsightly expedients to remedy them.

So much depends upon the proper construction of fireplaces and their flues, without which no appliance in the shape of a grate can have fair play, that I shall in the first place describe the points to be attended to in the erection of these portions of a building, and in palliating evils in those which already exist.

The first essential to ensure a good draught is that the flue should be sufficiently rarified. For this purpose it is desirable that it should not be in an outer wall; but if it be necessarily so, the enclosing wall should be thick (at least 9 in. between the flue and the outer air) or else it should be protected by a double casing, with intermediate hollow space. Materials which absorb damp should be avoided for the construction, as they tend to the evaporation and loss of the heat generated; and the interior of the flue should be well pargetted, to further prevent the suction of external cold by the up-draught within. Another important point is that the flue be not too large, or currents of cold air descending will interfere with the ascending heated air. In old buildings flues are found of large size,—as 18 in. by 12 in.,—with wide throats, funnel-shaped, diminishing upwards. But the fuel used in them was wood, and abundant, and men were more hardy, and minded not the roaring of wind in the chimney, or cowered over the embers within the vast embrasure of the fireplace, which formed an inner room of itself. There are those who would revive these large flues, on the ground that no cowls decorate their terminals. If, however, we are to recur to the practice of our ancestors, we might as well revert to that of a still earlier age, when the stately hall of Penshurst had its fire upon a hearth in the centre, and the graceful wreaths of smoke thence found exit by the lantern in the roof. We must needs then have the same goodly logs as fuel, and a supply which will enable us to afford the blaze that alone would suffice to rarify a cavern. The ordinary coal-fires of our apartments do not need a larger flue than a pipe of 9 in. in diameter. Mr. Richardson, in his work, states that the houses built by Cubitt in Belgravia have flues 9 in. by 9 in. only, while others erected later have them 14 in. by 9 in., and that these are distinguishable outside by the absence or presence of

* From a paper by Mr. John P. Seddon, read at the National Health Society, December 5th.

objectionable cowls respectively. Kitchen-flues must be larger, in proportion to their fires, or better, perhaps, doubled,—a practice for which old precedents may be found, and which seems calculated to avoid down-draughts.

For the avoidance of that particular nuisance, however, special provision should be made in every flue. This may be done by an enlarged space, wherein the force of gusts of wind may expend themselves upon, as it were, a cushion of air. If the first pipe above the chimney-mantel be a 9-inch pipe, let the next be a 15-inch one, and the flue above continued with 9-inch ones. A somewhat similar arrangement has been proposed by Mr. Boyd for brick flues. He discontinues the vertical flue a few feet above the mantel with an enlarged space or pocket, and carries an inclined one from the fire-place into this on one side, and the down-draught thus meeting resistance at the bottom, eddies round the space, without being able to check the upward draught from below. Mr. Cubitt's continuation of the flue to the basement also obviously affords a resisting column of air to effect the same purpose. It may be impossible to make such cavities large enough to overcome the effect of every down-draught, but these provisions against them will generally effect this desired end if combined with ample provision of air to the fireplace.

The use of pipes for the lining of flues has the advantage of compelling a good and non-porous finish, which would otherwise be neglected by careless workmen, who often will not take the trouble to properly parget and core the flues in stone and brick walls. The interior of the pipes, however, should be rough, and by no means glazed, or their inability to give any means of adherence to soot will be found a nuisance, in consequence of its continual dropping. The old funnel-shaped throat left a large space above the grate filled with cold air, which checked the draught. This depends much upon the grate itself; but, generally speaking, the flue should be contracted to its smallest size as soon as possible above the mantel. Iron frames for this purpose, serving as mantel-bars as well, such as Gibbs's registered fireplace-lintel, are useful appliances. A concrete block may be made of the shape required at perhaps the least cost. . . . .

The construction of the fireplace itself is of the most importance. The contraction of the flue immediately over it is the first point to be looked to, and next the provision of a proper supply of air for the combustion of the fuel. To illustrate this in the simplest manner, I may refer to a small room with a large fireplace in it, belonging to a friend, which was complained of as simply uninhabitable by reason of the draughts that invaded it from all sides. A piece of iron pipe, with lower end protruded through the outer wall, the middle brought through the fire, and the upper end open to the room, stopped all cause for complaint. The reason for this is so obvious that it seems hardly credible that a vast majority of dwellers in houses are enduring continual torture for want of this pipe or some equivalent simple appliance. One looks in vain along the walls of our streets for any signs of air-bricks or other inlets of air, and, with closed doors and plate-glass windows, one wonders where the air comes from to feed the fires within. There are but few available sources, which are these: 1. The joints of the window-frames and chinks round doors, through which cold blasts whistle as they are sucked in, so that these are pasted up, and as far as possible this means of supply intercepted. 2. Unused flues of other rooms down which air pours mixed with smoke; and 3. The soil and waste pipes, the water in the taps of which cannot hinder the precious element from coming even by such undesirable channels, in obedience to the powerful suction of the several fires in the house. These failing, there are positively no other sources. Then, fortunately, the fires begin to smoke, and doors and windows are perforce opened to abate that by far the smallest and least dangerous nuisance of the whole.

The remedy for this is to provide a sufficiently ample supply of pure fresh air in such a manner that it may come in moderately warm, and from such quarter that it be felt as a draught. There are several means of doing this, each hotly maintained by its partizans to be the only fit and proper one. The bottom, the centre, and the top of the room are each pointed out as being specially adapted for the purpose by those much-enduring laws of nature, and the course of the currents of air demonstrated by flights of the most obedient and flexible arrows. This certainly may be taken for granted: if openings be made in any or all of the positions indicated, the laws of nature will make a beneficial use of them, but it will be capriciously, one moment as an inlet and one as outlet, as the occasion may need. The fire being the motive power of the currents, the direction that the air will take if it can will be in a straight line to the fireplace, and therefore, to obviate disagreeable draughts, the air-inlets must not be placed so that currents thence must necessarily impinge upon the inmates of the room, as in the case of the undesigned ones of the chinks round the doors and windows. Again, they should not be so near and below the grate as to rush direct to feed the fire, and thus not only not aid to ventilate the room, but absolutely take from the fire that valuable office. By far the best mode, in my opinion, is to introduce the air below the hearth and carry it thence through warming-chambers at the back or sides of the grate, and allow it to issue into the room above the fireplace, or from the outer sides from the chimney-piece, so that it must ascend and mix with the air in the room before it finds its ultimate exit by the fireplace or outlet-flue. In fact, the fireplace itself should be the fountain of warmed fresh air to an apartment, since no draught thence can be annoying to any of the inmates of the room. The air may be brought, according to its position upon different floors, from below, by air-bricks inserted in the walls between the joists, or from above the roof by a flue constructed for the purpose; and if this flue be carried in close connexion with the chimney-flue, whether in separate pipes, as by Mr. Jennings's method, by the use of Boyd's metal withes, or ordinary brick ones, the air drawn down by the suction of the fire will have the temperature considerably raised above that of the outer atmosphere, the coldness of which, entering by windows, is unendurable.

WEYMOUTH SEWERAGE.

With reference to the letter from "Twelve Ratepayers of Weymouth" printed in our last week's issue, we have made some inquiries, the result of which we will briefly state. The plans, sections, estimates, and details, prepared by Sir John Coode, were adopted by the Corporation of Weymouth, who, we suppose, represent the ratepayers. These plans and details were submitted to the Government Board in London, and were minutely examined by its engineer, who reported upon them, recommending the required sanction.

The scheme provides for more than sewerage, as the dam across the backwater is to prevent the continuance of a large area of stagnant, and, at times, putrid water. The "strainers" spoken of would, we suspect, be worse than useless.

A local inquiry was not necessary, legally. The sanction to borrow was obtained before the passing of the Public Health (1872) Act.

The Government *may*, under this Act, lend money for as low as 3½ per cent., and *may* also, in certain cases, spread repayment over sixty years. This *may*, it appears, however, did not at the time apply to Weymouth.

Sir John Coode's connexion with the Admiralty had nothing to do with the case. The Corporation seem to have acted legally throughout, and have apparently done all for the best as affects the ratepayers. The prosperity of Weymouth depends upon its sanitary condition. We know personally what this condition has been, and are disposed to believe that the completion of Sir John Coode's works will add 20 per cent. to the value of house and town property in Weymouth.

THE DRAINAGE OF OXFORD.

Sir,—The paragraphs which have appeared in the newspapers respecting the drainage of Oxford are calculated to mislead. It is stated that "men are excavating for sewers in different parts of the city." This has given many persons the idea that the works have commenced. Such is not, however, the case, and the only excavation has been a few holes, to ascertain the condition and level of some of the existing sewers. It is also said that "an advertisement has been issued, announcing that the Oxford Local Board propose to apply to Parliament next session, for power to purchase lands for the construction of the Main Drainage works, and the purchase of land, for the purpose of a pumping station and irrigation works."

Now, the advertisement is to the effect that application will be made to the Local Government Board (not to Parliament) for powers to purchase a site for pumping station, and irrigation lands recommended in the report by Mr. Bailey Denton, to which you have alluded, and not for the construction of the drainage works proper, powers to proceed with which the Board already possess, and the working drawings for the first contract are in course of preparation in my office at the present time.

Oxford Local Board. Wm. Henry White.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

A general meeting of the subscribers was held at the office, 27, Farringdon-street, on the 26th ult., for the purpose of electing one pensioner on the relief fund. This election had created much interest, on account of one candidate (the widow of a former pensioner) coming up for the second time, having been unsuccessful at the last election; and the other candidate being the widow of one of the most active promoters and supporters of the Institution, great exertions having been used on her behalf to obtain sufficient votes to ensure her election.

The scrutineers were Messrs. Arthur Cates, Matthew Hall, and Thomas Stirling, and the result of the poll was, for Mrs. Jefferys, 424 votes: for Mrs. Spencer, 364 votes.

Mr. Arthur Cates, in declaring the result of the poll, stated that this election was remarkable, as showing the benefit arising to builders' clerks from being subscribers to the Institution, as Mrs. Jefferys was elected by the exact number of votes to which she was entitled, on account of the subscription her husband had paid. Had he not been a subscriber, there would have been a tie, as the voting stood.

Rule 4, section 5, referred to by Mr. Cates, states, "That should any decayed builder's clerk or his widow, having been a subscriber, become a candidate, he or she shall be entitled to ten votes for each guinea subscribed for all elections at which he or she shall be a candidate."

Had Mr. Jefferys not been such an active promoter of the Institution, he would have been comparatively unknown to the members of the committee and chief supporters of the Institution, who would not, therefore, have made such exertions to get his widow elected; and as Mrs. Spencer brought forward 177 votes from the last election, there is every probability that she would in that case have been elected by a large majority. Fortunately, by the rules of the Institution, Mrs. Spencer retains one-half of her husband's pension, to which she has been entitled since her husband's decease. There are eight pensioners now on the list.

STEAM LAUNDRY.

Some extensive premises have just been completed in Carlton-road, Peckham, for Mr. James Hayes, of Thornford-road, Lewisham Park. They consist of sorting-rooms, boiling-house, mangle and calendering room, ironing-room, stove-room with stone floor, chimney-shaft, boiler and engine house. Stabling is provided for four horses, with harness-room and loft, and living-rooms over. A large tank to hold 4,000 gallons is formed over the boiler-house, carried on brick arches and iron girders. There is also a well with a plentiful supply of water, and a lift in the main building. The upper floor of the latter is arranged to serve as a drying-room in wet weather, the surplus heat from the stove-room being utilised for this purpose. The plans and specification were prepared by Mr. H. Staines, of Lewisham, and the work, including a dwelling-house adjoining, has been carried out by Messrs. Staines & Son, of Great St. Helen's.

THE REGULATION OF COMPETITIONS.

Sir,—The recent lamentable instances of public competitions, offered under conditions of the most humiliating character, would seem, more than ever, to call for interference on the part of the Institute, or for some decided action by the Conference committee who draughted the "Regulations" agreed to in June last. There were, as may be readily understood, no meetings of our committee during the autumn; but your readers may like to know that the first meeting was held a few days ago, when several resolutions were passed, which, having now obtained the sanction of the Council of the Institute, we are about to put into immediate execution.

We propose to send copies of the "Regulations" not only to those promoters of competitions whose advertisements may appear in the professional press, but also to those of whom we know beforehand that they intend to issue such invitations; and *it is here* that we ask the cordial co-operation of all who have an improvement of the present state of things at heart. Architects, therefore, who may know of the intention of any committee or promoter to ask for designs in

public competition, will do much good and will greatly assist the cause we all have at heart, by forwarding the names and addresses of such promoters to the secretary of the Institute, 9, Conduit-street, in order that copies of the "Regulations" may be forwarded to them *before* their instructions are finally decided upon. We are persuaded that promoters err in this matter not intentionally, but from want of knowledge of what, in the opinion of architects, constitutes a fair competition. If, after they have received such information as will enable them to draw up instructions and conditions in accordance with the dignity and just claims of the profession, promoters should issue such advertisements as have appeared of late, architects will doubtless know how to abstain from responding to their kind invitations.

ALFRED STRONG,
Hon. Sec. of the Conference Committee on Competitions.

AN OBJECTION TO SLAG.

IRON SLAG ROADWAY.

DR. LANKESTER, in his report to the St. James's, Westminster, Vestry, says:—"I have received a letter from Mr. Jennings, of Tichborne-street, complaining of a smell which I have no doubt arises from the slag used to pave the road. This substance evidently contains phosphates and sulphates which, slowly decomposing, give out phosphoretted and sulphuretted gases suggestive of sewer contamination." The surveyor (Mr. Howell), on the same subject, says that Tichborne-street was coated with iron slag;—

"and whether the material was defective, or the weather unfavourable, or there was want of skill on our part, I should not like too hastily to decide; but I certainly should not recommend a repetition of the experiment in the present state of our information on the subject. In addition to rapid traffic, as exists in St. James's, some kind of chemical action was set up. This produced a most offensive and oppressive odour, perhaps not dangerous, but most unpleasant. I feel bound to state that this is due to the slag, as it never existed before and is very nearly gone now, as is also the slag. The two disappearing together is decidedly suggestive that there was a close connexion between the two, so that, without wishing to throw any discredit on the material, it is certainly unfit or not calculated to be useful here."

SOUND.

SIR,—I feel unable to altogether agree with the remarks of "J. K. C.," at page 930, upon this subject. I can easily imagine that "cockle-shells" or "broken crockery" can be of little value; but if, instead of them, the battens between the joists be covered 1 in. thick with "deafening," made up of sand with a little lime in it,—simply coarse plaster,—then I consider that said plaster deafening does help to keep back the sound. A great improvement I think could however be made if, before the flooring were laid down, the tops of all the joists were covered with long strips of thick woollen cloth, indiarubber, or kamptulicon. This being done, a non-conductor would thereby be placed between the flooring and the joists, which would prevent the easy passage of the sound from the one to the other, while between the flooring and the ceiling below we would have the "deafening" and two air-spaces.

B.

I can entirely corroborate what "J. K. C." says on the subject of sound. I am living in a house built with walls 22 in. thick, and with floors of the most substantial character, and the joists well pugged. Notwithstanding, the slightest sound above is readily heard in the rooms below, and the only remedy seems to be some very thick covering for the floors above.

C. H. B. H.

SCHOOL BOARDS.

Leicester.—The Board met to receive and consider a report from the architects' committee as to the plans for the school in Slater-street, and the elevation of the school in Oxford-street.

Ipswich.—Mr. Smith requested to be allowed to correct mistakes in his tenders which were accepted for the California and St. Clement's infant schools. The desks and boundary walls had been omitted from the tenders for the St. Clement's school buildings. There would be 104*l.* 10*s.* increase on the 582*l.* 9*s.*; making the whole 686*l.* 19*s.* He could not carry out the contract without serious loss, but could reduce the total to 675*l.* As to the California school, he said he was entirely out of court: an item of 446*l.* ought to have been doubled, increasing his tender to 1,103*l.* The next lowest tender, that of Mr. Cunnold, for 680*l.*, was then accepted for St. Clement's schools; and Mr. Luff's, of 993*l.* 16*s.* 6*d.*, for California schools was accepted.

Bradford.—The Works and General Purposes Committee reported that the committee had decided to recommend to the Board that the tender of Messrs. Wilson & Sons, for the erection of schools at Barker-end, at a cost of 12,300*l.*, should be accepted, and that Messrs. Duggan and Coates dissented. Mr. Neill then moved that the Board accept the tender of Messrs. Wilson & Sons, but an amendment, referring the tenders back to the committee for revision, was carried.

STOCKTON EXCHANGE BUILDINGS COMPETITION.

IN July last the directors of the Stock Exchange Company publicly advertised for designs, but eventually the competition was limited to local architects. About eight sets of drawings were submitted, from which three were chosen, bearing respectively the mottoes "Nota Bene," "Art and Commerce," and "Practice." In consequence of a lack of funds, none of these designs could be carried out, and the authors thereof were invited to prepare other plans in competition to suit a reduced site. Messrs. Alexander & Henman and Mr. C. J. Adams responded to the call, and the result is that Messrs. Alexander & Henman, of Stockton and Middlesbro', have been appointed to carry out the buildings, while a premium of 50*l.* has been awarded to Mr. C. J. Adams.*

The selected design comprises an Exchange Hall, which can also be used for public meetings and entertainments, and is capable of comfortably seating 1,700 persons, retiring-room and cloak-rooms being provided;—twenty-two business offices and a club with reading, billiard, letter-writing, coffee, and smoking rooms, kitchen, &c. The site is a long and somewhat narrow one, with an entrance to the High-street, of only 14 ft. According to the original scheme, the frontage was to have been about 68 ft., and consequently allowed of a much more imposing façade to the High-street.

The cost of the buildings is to be 9,000*l.*, and it is expected that they will be commenced forthwith.

HARTLEPOOLS EXCHANGE AND CLUB-HOUSE COMPETITION.

SIR,—I observe a letter on the above subject, signed, "Looker On," in last week's *Builder*, which contains several misstatements.

In the first place, it is not correct that the design bearing the motto "Veritas" is by Mr. G. G. Hoskins, of Darlington. That selected for the first premium bears the motto "On Change," and is by Mr. Hoskins. Neither is it true that "sundry alterations" have been made in the designs or estimates. The building will be carried out precisely as at first designed, except that some of the offices, which were laid out in large blocks, may, if thought proper, be divided into sets of two; and to provide for this an additional tender was obtained from Messrs. Robson & Son, of Darlington, the contractors for the whole of the works. There is no lack of funds for carrying out the work, nor is it true that "the plan for the Exchange buildings was thought to be inferior to that submitted by one of the other premiated architects." I can safely say that it was the general opinion of the directors of the Exchange Committee (not one of whom, I believe, was personally acquainted with Mr. Hoskins) that the design bearing the motto "On Change" was in all respects the best, and consequently it was selected for the first premium.

I may here state that, as I have been consulted by the directors, from time to time, on several matters connected with the undertaking, and having also an interest in the same, I feel called upon to reply to the letter of "Looker On."

CHAS. T. CASEBOURNE, C.E.

DECISIONS UNDER THE METROPOLITAN BUILDING ACT.

"NECESSARY REPAIRS."

MESSRS. PHILLIPS & SON, builders, appeared, on the 16th ult., at Marylebone Police Court, before Mr. Mansfield, to answer a summons obtained by Mr. J. Jennings, district surveyor of South Marylebone, for irregularity in raising certain walls without constructing the same of brick, stone, or other hard and incombustible material, contrary to rule 1, schedule 1, of the said Act.

Evidence was given to the effect that the builders have been engaged in executing extensive repairs to No. 10, Henrietta-street, Cavendish-square, and in course of these operations it was found that certain bay-windows projecting from the face of the external walls, extending from the first-floor level to the ceiling of the second-floor, and constructed of wooden framing, covered with lath and plaster (described in the summons as *walls*), had become very much out of repair, and the surveyor under whose superintendence the works were being carried out, considered it expedient to relieve the substructures of the bays of as much of the weight of their roofs as possible, and with that object substituted framed heads, 15 in. deep, in place of the original solid heads. The district surveyor sought to prove that this was a raising within the meaning of the Act; whereas it was contended that the new heads were only a necessary repair to an old building, and consequently not within the operation of the said Act.

The magistrate decided that this was only a necessary repair, to which the rules of the Act did not apply.

Notice of appeal was given.

RAILWAY ARCHES.

Mr. Rendell was summoned to the Wandsworth Police Court by Mr. Jennings, jun., district surveyor of part of Battersea, for not having given him notice of a building, as required by the Act.

Mr. Jennings said it was an irregular building, composed of wood, which had been erected under a railway arch in the Queen's-road, Battersea. He read a letter from the defendant, who expressed surprise at the interference of the surveyor, when there were so many thousand railway-arches covered in with wood.

Mr. Brewer (Baxter, Rose, & Norton), who appeared for the defendant, argued that it was not a building, as the real building was a railway, which was among the exceptions in the Act. He said it was a case of great importance to the Brighton Railway Company, as they derived a revenue of about 7,000*l.* a year from the letting of their arches. The defendant was their tenant, who had fitted up the arch in the way described. What he had erected was a mere fitting in the arch, and not a building. He then read a case in point, which was decided in the Court of Queen's Bench in 1858, the South-Eastern Railway Company having let one of the arches of the North Kent line for a stable, the judges ruling that it was not a building.

Mr. Jennings said the two cases were not exactly the same.

Mr. Ingham said in the face of that decision he could not convict. He adjourned the summons, to give the district surveyor an opportunity of consulting the Metropolitan Board of Works as to whether they would take a case.

* A deceptive account of this decision was sent to us by one who ought to have known better.

A BERMONDSEY CURIOSITY.

SIR,—There is in the parish of Bermondsey a small street, which bears the name of *West*-street, *North, South, East;* the parish authorities having supplied the "West" and "North," and the Postmaster-General having kindly added the "South" and "East." It is a very useful little thoroughfare leading from Jamaica-road by a short cut to Spa-road; that is, its main line,—about fifteen houses,—does this. But the street has this second singularity (I hope that "second singularity" is not a bull): it is not content with running a straight course; but at about the middle of that straight course it strikes off at right angles a longish spur, so that the street altogether forms a figure something like an irregularly-shaped capital T. But it has lately acquired this third singularity, it is now an "eminently" muddy street, even for Bermondsey, the mud in it being *very high*. Can it be possible that the root of mud is muddle?

PED.

POWERS OF BOARDS OF WORKS.

THE case *Chippenden and Others* v. *The Metropolitan Board of Works* raised a question of considerable importance as to the exercise of the very stringent powers given to local boards, as to their control over the erection of new buildings and the right of parties to compensation. A full report of the judgments delivered will be found in the *Times* of Nov. 30.

M'Candlish v. *The Board of Works for the Lewisham District*, tried before Vice-Chancellor Sir J. Wickens, Nov. 26, concerns the laying-out of streets and the right of boards to compel the setting back of buildings. A report will be found in the *Metropolitan* of Nov. 30.

FIRE-PROOF CONSTRUCTION.

RECENT events render this subject more interesting than ever. Mr. Lewis Hornblower, of Liverpool, in a recent circular as to his new system, to which we have before alluded, says,—"The disastrous fire at Chicago [to which may already be added that of Boston,—not to speak of the late fire in Thames-street], and the numerous extensive conflagrations in this country, add to the pressing importance of the subject of fireproof construction. . . . . After many experiments, Mr. Hornblower tried a combination of sheet iron, fire-clay hollow tubes, and Portland cement concrete. The sheet iron and fire-clay tubes formed, as it were, the skeleton to the structure, while the concrete acted like the tendons and muscles of the human frame, knitting the whole together in a firm and homogeneous mass. Experiments were made, and the result proved a decided success. The hollow tubes forming the framework of the floor also solved the question of ventilation. The space taken up by the floor is not greater than that of ordinary joists and boards,—in fact, only 9 in. The same principle of construction is applied to walls, roofs, and partitions. Staircases can also be readily formed by this combination of mate-

rial. The question of cheap, warm, and strongly-built cottages is thus set at rest, for this invention is applicable to all classes of building."

CHURCH-BUILDING NEWS.

Purton.—The church here has been restored and reopened for divine service. Mr. Butterfield was the architect employed, and Mr. J. Phillips, builder, Swindon, gave in a tender which was accepted. The interior of the church was in a manner completely blocked up with woodwork—galleries, organ-loft, &c., and the pews were in the old horse-box style. The pulpit, in an awkward position, was an old three decker, the seat for the clerk, the reading-desk, and the pulpit, being one over another. The roof, flooring, vestry, &c., were also in a very unsatisfactory state. The flooring has been completely replaced with the modern church tile, and the roof of the nave cleaned of the plaster which disfigured it, bringing out the timbers. The walls have been cleaned, discovering traces of wall-paintings and inscriptions in ancient characters. The arches from four of the pillars are being picked out in colours,—restored to their original decorated style. The chancel has been renovated, the windows cleaned out, two niches—one on each side of the communion-table—restored, and the old picture of the Last Supper placed in another position. From the chancel, on the northern side, a small low door formerly led into a kind of chapel; this has been walled up, and another entrance opened from the north aisle, with a carved oak screen. This will now constitute the vestry-room. The roof of this apartment has been lowered, and restored to its original state. The northern window was blocked and barred up in an extraordinary way. Seventy pounds weight of lead were removed from it, and it has been conjectured that the place was at one time or another used as a dungeon. In the corner of the wall nearest the communion-table, the workmen found a skeleton, which was examined by Mr. Sadler, and pronounced as the bones of a female. Two heads, one of a warrior and the other of a priest, are placed one on each side of the screen. The old vestry-room was over the southern porch, and very cramped in space. The organ is now placed near the chancel, on the south side of the church; and the pulpit, a new oak structure, a little lower down on the same side. The old pews are entirely swept away, and replaced by the low modern oak benches. Externally, the steeple has been repaired, and the ground lowered round the church. This church is remarkable for having a steeple and tower—the steeple at the east end, and the tower at the west. The village tradition is that the church was erected through the gifts of two old women, one of whom wanted a steeple, and the other a tower: so, as they could not agree, they each built what they fancied.

Horncastle.—The church of High Toynton, near Horncastle, has been rebuilt by Mr. R. Young, of Lincoln, from the designs of Mr. E. Christian, of London, for about 880*l*. It consists of nave, 43 ft. by 20 ft.; chancel, 16 ft. 9 in. by 16 ft. 10 in.; small vestry on the north side; and a tower, with octagonal belfry and slated spire, at the south-west corner, the lower floor of the tower forming a porch. The roofs are covered with Cornish slates and red ornamental ridge-tiles; the timbers are stained and varnished, the spaces between the rafters and the wall-surface to the interior being plastered. The inside apertures have quoins, sills, and arches, which, with the outside dressings, are of Ancaster stone. The walls are of the local green sandstone, hammer-dressed. The pulpit, reading-desk, lectern, altar-rail, and doors are of oak; the latter hung with wrought-iron foliated hinges. The floors of the sittings are boarded with oak joists and sills. Accommodation is provided for 100 occupants on comfortable open benches. The standards of the altar-rail are by Skidmore; the chancel floors by Maw & Co.; the alley and porch are paved with blue and red tiles. The late church was erected in 1772, and during its demolition some ancient masonry was discovered, suggestive of two previous churches on the same site, and probably on the same foundations. It consisted of fragments of Early English windows in Ancaster stone, with relics of very early Norman work. The existing foundations are now used again, for apparently the fourth time. A sufficient number of these old stones were used for the inner arch of the vestry window, and for a discharging arch over the south doorway. Messrs. Clayton & Bell have designed a memorial light of stained glass in the south-east window of the nave, at the cost of the vicar, and have some in hand for the west window, to be presented by Mr. John Maddison and friends.

Arthingworth (Northampton).—St. Andrew's Church, Arthingworth, was reopened on the 6th November, by the Bishop of Peterborough, after its restoration and partial rebuilding, which have been carried out almost entirely at the expense of the rector, the Rev. H. R. Rokeby, of Arthingworth Manor, by Mr. James K. Colling, of London, architect, and Mr. Robinson Cornish, of North Walsham, Norfolk, builder. Unlike most of the old churches which have been handed down to us, the stones of the walls of this church were found to have been put together with nothing but mud,—clay and mortar—having no cementing qualities whatever. This discovery necessarily made the restoration somewhat more extensive than was originally contemplated. The nave, piers, and arches, south aisle and the south porch were found to be in a very insecure condition, and had to be almost entirely taken down, and new portions, in many cases, supplied the places of the old; although, wherever it was possible, the old work was simply cleaned and re-erected. A new oak roof, of steep pitch, has been put over the nave; the curved ribs spring from carved stone corbels, containing birds, foliage, and fruit. It is covered externally with Whitland Abbey green slates, having ornamentally cut bands at intervals. The east end of the chancel, which had no architectural character whatever, has been removed, and the new work erected in the position of the original foundations of the chancel, which were found 7 ft. or 8 ft. beyond the wall, taken down. The east window has been made of three lights, with geometrical tracery; and three new side windows (two on the north side and one on the south), and a chancel doorway on the north side have been added. The chancel is covered with a new roof, of the same pitch as the roof of the nave, having a ceiling of polygonal form, divided into panels by oak moulded ribs, with carved bosses at the intersections. The nave and aisle have been reseated with oak open benches, with carved bench-ends, having foliage conventionalised from nature, consisting of the oak, hawthorn, maple, holly, trefoil, ivy, and rose, besides many other varieties. The reredos is of Caen stone. It consists of an arcade of five arches, enriched by the ball-flower, supported on Devonshire marble shafts, having carved stone caps; the spandrels between the arches containing carved designs of the wheat and vine, the passion-flower, and lily. The east window has been filled with stained glass, the subject of which is the Crucifixion, executed by Messrs. Heaton, Butler, & Bayne. The church is heated by one of Porritt's underground stoves. The total cost is somewhere about 2,000*l*. In the evening of the day of opening, the workmen who had been engaged upon the work of the church were entertained at a dinner given by the rector, who complimented them on the quiet and orderly manner in which each had gone about his work.

VARIORUM.

Speaking of Japanese and Chinese arts, the *Art-Journal* says,—The Japanese are a highly progressive race. From their intercourse with China they have learned much. If they have imparted little in return, the fault lies not in them, but the natives of the flowery land. The insular people have shown a wonderful power of adapting themselves to circumstances. From the Chinese they have learned to make paper, and to prepare tea. Nor have they been content with learning alone. They actually import ceramic articles from China to adorn with their own inimitable lacquer. They study the latest improvements of Europe, instead of at once despising and fearing the "foreign devils." A European official once presented to the Japanese minister a beautifully-finished rifle. His Excellency received it with courtesy, and examined it with care; but quietly remarked that he was of opinion the needle-gun was the weapon of the future! No wonder that such a people, alone among Orientals, readily attempt to intersect their islands by railways.——"Little Kate Kirby," the serial story going on in *Cassell's Magazine*, increases in interest, and is creditable to its author, Mr. F. W. Robinson.——"On the Physical Characteristics of the Missouri River and the Means used for Directing and Controlling its Channel at St. Joseph, Mo. By E. D. Mason. Printed by St. Joseph Printing Company. 1872." This is a reprint from the local *Railroad Gazette*, of October 5th, 1872, of a paper read before the Civil Engineers' Club of the North West, September 10th, 1872. It shows what can be done in controlling a great river. "The problem was to stop the river where it was, at St. Joseph, and drive it 3,000 ft. east, and through the bar and against the clay bank which was its eastern shore ten years ago. Work was begun for this purpose in October last [1871], and by the 1st of August following all of our objects were accomplished." To give protection to the west approach to the bridge now building over the river, and to insure the passage of the channel of the river through the draw at all times, were the ends to be gained; and the works consisted of dykes and shore protection. The river had theretofore wandered at will over a channel sometimes two miles wide, and often three or four, and there was a fear of its leaving St. Joseph inland altogether.

Miscellanea.

The Liverpool Labourers' Dwellings Company's New Buildings.—These buildings are now far advanced towards completion. They are being erected on land purchased by the company at the north-west junction of Ashfield and Latimer streets, were erected a few years ago by the corporation, and cover an area of nearly an acre of ground, consisting of two blocks, comprising in all 132 tenements. The frontage to Ashfield-street is 344 ft.; that to Latimer-street being 110 ft. Of the tenements forty-eight are houses containing a living-room and three bedrooms each, twenty-eight contain a living-room and two bedrooms, and forty-eight a living-room and one bedroom. On the ground-floor, facing Latimer-street, are four shops; and four basements are devoted to baths and washhouses. Each house is supplied with a watercloset. The sizes of the living-rooms range from 12 ft. 10 in. by 12 ft., to 12 ft. 2 in. by 11 ft.; and those of the bedrooms from 14 ft. by 10 ft., to 9 ft. 9 in. by 8 ft.; all rooms being 9 ft. high. The floors of the houses in the basement are all laid with cement, as are also the scullery floors, all the other floors being boarded. The buildings are mostly four stories or flats high. On each flat there is a stone balcony communicating with the staircases. Dust-shoots are provided, one between every couple of entrance-doors. There is an open space, or court-yard, between the two blocks, 270 ft. long and 48 ft. wide. The elevations are of common grey North Shore bricks, with Runcorn stone dressings and cornices, and chimney corbellings of patent red brick. The balconies and staircases are of York stone. The architects are Messrs. H. & A. P. Fry; the contractor is Mr. W. Thornton; and the clerk of works Mr. James Peers. The cost of the buildings will be about 18,000*l*., exclusive of land. The rents have been fixed at from 4s. to 7s. per week. There is already a large application for the houses.

"Godwinia Gigas." — This extraordinary plant has now been somewhat imperfectly known for nearly four years, having been discovered by the late Dr. Seemann in the Chontale Mountains of Nicaragua, in January, 1869. Though living specimens of the root-stock were at once sent to this country, it has not flowered till the present year; specimens, however, soon threw up their single gigantic leaves, one of which in a London nursery attained the extraordinary dimensions of 13 ft. in length. The flower has been looked for with much interest by botanists, and some two years ago a single plant showed signs of flowering, but owing to the negligence of the gardener, it was allowed to rot off. The flower, which comes up by itself, after the single leaf has entirely died off, was expected at the meeting of the Royal Horticultural Society on Wednesday last, but when the day arrived the bud had not opened. This single unopened bud was, however, shown, growing in a large pot; and the following are the exact dimensions:—Length of stalk, 1 ft. 6 in.; length of flower-bud, 1 ft. 3 in.; circumference, 9 in.

St. Peter's, Cornhill.—Considerable works have been executed here under the direction of Mr. J. Drayton Wyatt, and the church was re-opened by the Bishop of London, on the 1st inst. We will give some particulars hereafter.

Fire and Water.—The *American Artizan* says:—Is it possible to build sure? Can a totally fire-proof building be made? To believe that this is impossible would be greatly to depreciate the mechanical and scientific resources of the age. Nothing can burn till heated to the temperature at which it combines with oxygen; the problem of fire-proofing will then be solved when we discover the means by which the temperature of combustibles can be kept from reaching the temperature of combustion. We can apply the most intense heat to steam-boilers without burning them. Why? Because each atom of water they contain is a swift vehicle to seize upon and carry away heat. Let us make up the partition of walls of buildings in a manner analogous to sectional steam-boilers, and no fire would be communicated from one building to another. A thing so evident should have attracted the attention of architects long before this. In this way, iron, which by itself is not a fire-proofing material, can, by the most economical use of water, be made to withstand the severest ordeal. The iron-inclosed water-spaces need not be more than 1 in. in thickness, and need never be subjected to a hydraulic pressure of more than 3 ft. or 4 ft. head. These walls can, therefore, be made of thin metal. They can be supplied with water from the common water-service or from tanks placed at the tops of buildings. In case of fire, the turning of a single cock would supply them with water, and the temperature of the partitions could never rise above 212° F. till the water had all boiled away. In this way, not a tithe of the water now vainly used to extinguish such fires as those of Chicago and Boston would be needed to preserve a whole city.

Accidents.—By the fall of a mill-floor an accident has occurred at Newton Mills, Huddersfield, which resulted in the death of Mr. Fawcett, joiner and builder, and serious injury to a cotton spinner. A fire had occurred at the mills, and considerable damage was done. Since the firemen have been engaged in removing the rubbish from the garret of the mill on to the floor of the fourth story. Mr. Fawcett went to the mill for the purpose of valuing the premises. He entered the third story, and had not been in the room very long before the floor immediately above gave way with a loud crash from the large quantity of material thrown upon it. Mr. Fawcett was completely buried. A gentleman with him was injured, and Mr. Fawcett was killed. An inquest was held, when the jury found a verdict of "accidental death," and passed a resolution of condolence with the wife and family of the deceased gentleman. Mr. Fawcett was a member of the Huddersfield Town Council.——Four men were working on a scaffold at the new Church schools, in Bolton-road, Pendlebury. Whilst a piece of timber was being raised from the ground by means of a rope, the scaffolding gave way, and the men were precipitated to the ground, a distance of 15 ft. Two of them escaped unhurt, but the other two were badly injured. One has since died.

The Polytechnic College.—Lord Lyttelton presided, on Friday in last week, at the distribution of prizes and certificates to the members of the evening classes of this college, which is established in connexion with the Polytechnic Institution, and in union with the Society of Arts, the Science and Art Department at Kensington, and the City of London College. A report, by the Rev. Charles Mackenzie, Prebendary of St. Paul's, and honorary manager of the college, was presented. Mr. Mackenzie stated that the classes had been attended with great success, and that 115 certificates had been awarded by the three institutions with which the college was connected. Those of the students who had particularly distinguished themselves would receive books which had been chosen by the young men and women themselves. Lord Lyttelton distributed the prizes and certificates.

Institution of Surveyors.—At the ordinary general meeting, held on Monday, November 25th, a paper was read by Mr. Arundel Rogers, entitled "Mines and Minerals." A vote of thanks was unanimously given to the author of the paper, and the discussion was adjourned. The next meeting will be held on the 9th inst., when a paper will be read by Mr. W. Sturge, entitled, "Statistical Notes on the Prices of Agricultural Produce, Labour, and Rent, from the early part of last Century to the present Time, with Remarks on the present Aspect of the Labour Question."

Opening of the Workmen's Hall, Rivenhall.—This hall, which has been recently built through the kindness and liberality of Dr. Dixon, of Dorward's Hall, for the benefit of the working men of Rivenhall, Kelvedon, Braxted, and Witham, has been opened. The hall is situated in the parish of Rivenhall. The hall will be well warmed and lighted; daily and weekly newspapers and magazines, &c., will be placed upon the table; refreshments (minus intoxicating liquors) will be supplied at reasonable prices; smoking will be allowable; and arrangements are also made for bagatelle, chess, draughts, dominoes, &c. There is also a library of about 300 volumes. An excellent pianoforte has been presented by Lady Tite, and Sir W. Tite, M.P., for Bath, has presented a handsome clock, a bagatelle-board, and also a donation of 10*l*. The books are mostly gifts.

The Anglo-Swedish Steam Cutting Mills Company, Limited.—This new company has been incorporated under the Companies Acts, 1862 and 1867.—It is to have a capital of 20,000*l*. (with power to increase), in 10,000 shares of 2*l*. each; the share list to be closed on 15th Dec. inst.; 5s. per share to be paid on application, 15s. on allotment, and the balance in two equal instalments of 10s. at three and six months thereafter. The general manager is Mr. Henry Fairman, late of Stockholm, Sweden; and the temporary offices are at 27, Leadenhall-street. The company is formed to manufacture in Sweden, and supply the trade in England with ready-made doors, window frames, mouldings, and other goods used by builders; packing-cases, boxes, and similar goods; firewood and lathwood; and to trade generally in all descriptions of wood.

The Smithfield Club Cattle Show.—On Wednesday evening the arrangements for the Smithfield Club Cattle Show at the Agricultural Hall were finally completed, under the able direction of Mr. Brandreth Gibbs, the energetic hon. secretary of the club, and Mr. Sydney, the manager of the hall. The whole of the space for agricultural implements in the galleries, and for carriages and other domestic and useful articles, will be occupied, and the demands for it were doubly in excess of the amount of accommodation. On Monday next, the judging-day, the public will be admitted to the galleries, at a sort of private view, till 2 p.m., and then into the body of the hall. The general show will open on Tuesday, and close on the following Friday.

New Masonic Lodge in Leeds.—On Thursday night, the 21st ult., the Fidelity Lodge of Freemasons, 289, inaugurated their new premises erected in Carlton-hill, Woodhouse-lane. The new building has been erected from designs drawn by Mr. Bakewell, of the Fidelity Lodge. On the ground-floor there is a banqueting-room, 34 ft. by 27 ft. 8 in., and 12 ft. high. Adjoining this are the tyler's rooms, communicating with the kitchen, so arranged that the whole of the household is isolated from the Lodge. On the first floor are the instruction and preparing rooms and the Lodge-room. The latter is of large proportions, with open roof; dimensions, 40 ft. by 27 ft. 8 in., and 16 ft. high.

Reduction in the Price of Welsh Iron.—At a meeting of the principal ironmasters of Monmouthshire and South Wales, to consider the present position of the trade, it was unanimously resolved that notices be issued for a reduction of 10 per cent. in the rate of wages. This step has been decided upon in consequence of the scarcity of orders for manufactured iron, it having been found impossible to keep the works going at present prices. The ironmasters also decided upon reducing the price of rails from 30s. to 40s. per ton, or from 10*l*. 10s. to 8*l*. 10s. or 9*l*. This reduction will affect not only the iron-workers, but the colliers employed by the ironmasters.

Poltimore Hall, Exeter.—The new wing and dining-room and other alterations at Poltimore Hall, designed by Mr. Ferrey, F.S.A., of London, and carried out by Messrs. H. & F. Burridge, builders, of Exmouth, are now complete, and Lord Poltimore, as a token of his approval, has presented the foreman (Mr. James Baker) with 5*l*.; also 5s. to each of the workmen, numbering seventy-four. Mr. Lang, the steward of Lord Poltimore, has superintended the work.

The West Ham Local Board of Health have declined to receive any payment from the Government towards the salaries of the medical officer and inspectors of nuisances.

The Antwerp Competition.—The Hon. Sec. for Foreign Correspondence at the Institute of Architects announces that he has received from the Belgian Legation particulars of a competition, inviting designs for a new hospital at Antwerp. Three premiums, viz.,—3,000 francs, 2,000 francs, and 1,000 francs, were offered. The drawings must be sent in before the 1st of May, 1873. A pamphlet containing a plan of the site and the various conditions of the competition has been forwarded to the Institute.

All Hallows Village Hospital, Ditchingham.—A few days since the roof-raising here was celebrated by a dinner given, through the liberality of the superior of the House of Mercy, to the tradesmen and their workmen, numbering upwards of eighty, employed in erecting this building. The chair was occupied by Mr. John D. Botwright, the contractor for the whole of the work, supported by the several tradesmen associated with him. The architect is Mr. R. J. Withers; the clerk of works, Mr. Laidler, of London.

Cottages at Wincanton.—Sweetman's local *Monthly Illustrated Journal* writes,—"What can we say to the tale told of us by the *Builder*? For the sake of God and humanity, let those amongst us who can, do all we can to alleviate the sorrows, and make comfortable the homes of our 'poor brethren.' Is it not possible, when the cottages of the very poorest fall into decay, and are destroyed, to build others in such a way that no loss will fall on the proprietor? If it is *not* possible, and no one will build and sustain cottages at a loss, what are the poor to do? Can this be an unimportant question to ask?"

Parks.—Mr. Fras. Peek offered to give 7,500*l*., provided that the governors of Dulwich College would dedicate for the public use 150 acres of their estate, and form and maintain the same as a park. The governors of Dulwich College came to the conclusion that they would not be able, under their Act of Parliament, to apply any portion of their estate as desired. They are ready, however, to work with the vestry in securing the means to obtain a new park for the increasing and populous neighbourhoods of Walworth, Camberwell, and Dulwich.

Society of Engineers.—At the meeting of the society held on Monday evening last, Mr. Jabez Church, president, in the chair, Mr. W. H. Fox read a paper on "Continuous Railway Brakes."

TENDERS

For the erection of schools, Woodpecker-road, Newcross, for the London School Board. Cubic contents of the buildings, 259,000 ft. Mr. F. Warren, architect. Quantities by Mr. W. G. E. Bagg:—

Perry, Bros.	£8,777 0 0
High	8,750 0 0
Gorrum	7,700 0 0
Williams & Sons	7,560 0 0
Newman & Mann	7,496 0 0
Conder	7,043 0 0
Marsland & Sons	6,996 0 0
Jerrard	6,989 0 0
Roberts	6,974 0 0
Wicks, Bangs, & Co.	6,962 0 0
Hill & Sons	6,950 0 0
Dove, Bros.	6,875 0 0
King & Son	7,115 0 0
Shepherd	6,250 0 0

For the erection of new schools and offices at Hamond-square, Hoxton, for the London School Board. Mr. Robson, architect. Quantities supplied:—

Hill & Sons	£7,280 0 0
King & Son	6,360 0 0
Perry & Co.	6,590 0 0
Perry, Bros.	6,577 0 0
Dove, Bros.	6,475 0 0
High	6,470 0 0
Roberts	6,469 0 0
Browne & Robinson	6,427 0 0
Pritchard	6,144 0 0

For the erection of a villa residence, warehouse, and other works, near Midland-road, Bedford. Mr. F. T. Mercer, architect. Quantities supplied:—

Richards, sen.	£1,519 10 0
Taylor	1,503 7 0
Potter	1,459 10 0
Carter	1,419 0 0
Wootton	1,375 4 6
Haynes	1,367 5 0
Chibnall	1,277 18 0
Dunkley	1,261 0 0

Accepted for two houses at Hitchin, Herts, for Mr. J. H. Tuke. Mr. J. Shilcock, architect:—

Bricklayer, Slater, Plasterer, and Mason's Work.

Jeeves	£529 5 0

Carpenter's Work.

Seymour	254 0 0

Plumber, Glazier, and Painter's Work.

Baker	69 10 0

For additions to the Brewery at Wilderspool, for Messrs. Greenall & Co. Mr. R. Davison, architect. Quantities by Messrs. Curtis & Son:—

Wright	£4,960 0 0
Gibson & Son	4,830 0 0
Collin & Son (accepted)	4,399 4 0

For the erection of St. Luke's Parsonage-house and schools. Messrs. Hooper & Lewis, architects. Quantities by Mr. J. W. Forge:—

	Parsonage.	Schools.
Thomas	£1,750 0 0	£2,930 0 0
Warr	1,652 0 0	2,952 0 0
Hobbins	1,650 0 0	2,935 0 0
Sabey & Son	1,690 0 0	2,880 0 0
Spearing	1,751 0 0	2,783 0 0
Tibbetts, jun.	1,536 10 0	2,761 0 0
Haines & Son	1,589 0 0	2,696 0 0
Stephenson	1,434 0 0	2,643 0 0
Lewin	1,520 0 0	2,478 0 0
Mortar	1,470 0 0	2,535 0 0
Gibson, Bros.	1,451 0 0	2,494 0 0
W. H. & J. Mansbridge	1,496 0 0	2,454 0 0

For new workhouse, East Preston Union. Mr. G. B. Nichols, architect:—

Tibbetts, jun.	£13,543 2 0
T. Chappell	12,745 0 0
Masbridge	12,318 0 0
Peerless	12,037 0 0
J. Chappell	11,825 0 0
Bushby (accepted)	11,640 0 0
Smith	11,471 0 0
Snewin	11,440 0 0
Cook	10,985 16 0

For schools at Eelbrook Common, for the London School Board. Mr. B. Champneys, architect:—

Wood	£6,180 0 0
High	6,162 0 0
Perry, Bros.	5,998 0 0
Shepherd	5,950 0 0
Manley & Rogers	5,940 0 0
Wicks, Bangs, & Co.	5,860 0 0
Hill & Sons	5,825 0 0
Ennor	5,820 0 0
Dove, Bros.	5,775 0 0
Newman & Mann	5,698 0 0
King & Sons	5,618 0 0
Roberts	5,579 0 0
Foster	5,433 0 0
Ashby & Sons	5,400 0 0
Henshaw & Co.	5,285 0 0

For elementary schools, York-road, Finsbury, for the London School Board. Mr. T. W. Aldwinkle, architect. Quantities supplied by Mr. T. Nixon:—

Scrivener & White	£9,983 0 0
Colls & Sons	9,890 0 0
Higgs	9,791 0 0
Brass	9,780 0 0
Hearle	9,780 0 0
Sheffield	9,742 0 0
Browne & Robinson	9,680 0 0
Carter & Son	9,644 0 0
Cooke & Green	9,617 0 0
Cooper	9,540 0 0
Axford & Wheeler	9,465 0 0
Peto, Bros.	9,332 0 0
Mansbridge	9,286 0 0
Hill & Sons	9,230 0 0
Langmead & Way	9,150 0 0
Crockett	9,150 0 0
Pritchard	8,983 0 0
Henshaw & Co.	8,975 0 0

For a detached residence, to be erected in Portinscale-road, Wandsworth. Messrs. Lee, Bros., & Pain, architects. Quantities supplied:—

Aries	£2,175 0 0
Pain	2,170 0 0
Thompson	2,075 0 0
Aviss & Co. (accepted)	2,048 0 0

For new rectory-house at Brightwaltham, Berks, for the Rev. H. F. Howard, exclusive of bricks and the materials of the present rectory. Mr. Edwin Dolby, architect:—

Bryan (accepted)	£2,396 0 0

For Welsh chapel, Seven Sisters-road, Holloway. Mr. A. G. Hennell, architect:—

Stevens	£1,841 0 0
Pritchard	1,630 0 0
Cooke & Green	1,606 0 0
Richards	1,599 5 0
Williams	1,446 0 0
Heath	1,295 10 0

For additions and alterations to 19, Lawrence-lane, Cheapside, for Mr. S. Gibbins. Messrs. Goulty & Gibbins, architects:—

Colls & Sons	£400 0 0

For the erection of two houses at Brixton, for Mr. W. Everett. Messrs. Goulty & Gibbins, architects:—

Rowe & Verran	£1,071 0 0

For alterations and additions to the Prince of Wales Tavern, Denmark-road, Camberwell. Mr. G. Treacher, architect:—

Biggs (alterations)	£614 10 0
Biggs (fixtures)	168 0 0
Hurst (pewtering)	53 0 0

For rebuilding the Union Arms Tavern, Union-road. Mr. George Treacher, architect:—

Knell, sen. (accepted)	£1,230 0 0
Day (fittings, exclusive of glass)	380 0 0

For villa residence at Croydon, for Mr. Styles. Mr. Palce, architect. Quantities supplied:—

Saunders	£1,070 0 0
West	1,060 0 0
Hundall	980 0 0
Taylor	970 0 0

For deepening sewer in High-street, Shoreditch, for the Metropolitan Board of Works:—

Neave	£7,450 0 0
Ritson & Thompson	7,010 0 0
Nowell & Robson	6,840 0 0
Fordham	6,835 0 0
Wigmore	6,600 0 0
Chapel	6,500 0 0
Pearson	6,390 0 0

For completion of three houses on the Clapham Junction Estate, for the Conservative Building Society. Mr. J. Ashdown, architect:—

Phelps	£1,226 14 9
Amor	1,110 0 0
Wigmore	899 10 0
Long	892 0 0

For the re-arrangement of the chancel of All Saints Church, Fulham:—

Taylor	£135 0 0
Spurway	130 0 0
Dove	119 0 0
Pitts	80 0 0
Wigmore	74 10 0
Jones	73 0 0

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G. S. *Vienna* (the Alhambra, under the title of the Panopticon, was built from the designs of Professor Hayter Lewis. Full particulars will be found in an earlier volume of the *Builder*).—J. M. (no matter where the wood frame is if permission to remove has been given by the landlord).—A Reader (we must decline to recommend a stove).—F. M. (ditto).—S. & Co. Louisville (letter has been forwarded as requested).—W. P. G.—H. P.—A. G. H.—Miss S.—J. A. P.—C. J. A.—C.—B. R.—B. G.—J. S.—J. P.—Weymouthian.—L. A.—E. Y.—C. T. C.—J. D. R.—J. S.—W. & J. H.—Weymouth.—J. P. of Weymouth.—C. A. K.—J. D. W.—A. W. L.—A. & H.—A. & Co.—E. L.—C. R.—E. D.—H.—T. N.—O. O.—G. B. N.—G. E. P.—G. T.—W. P.—O. S.—H. & P.

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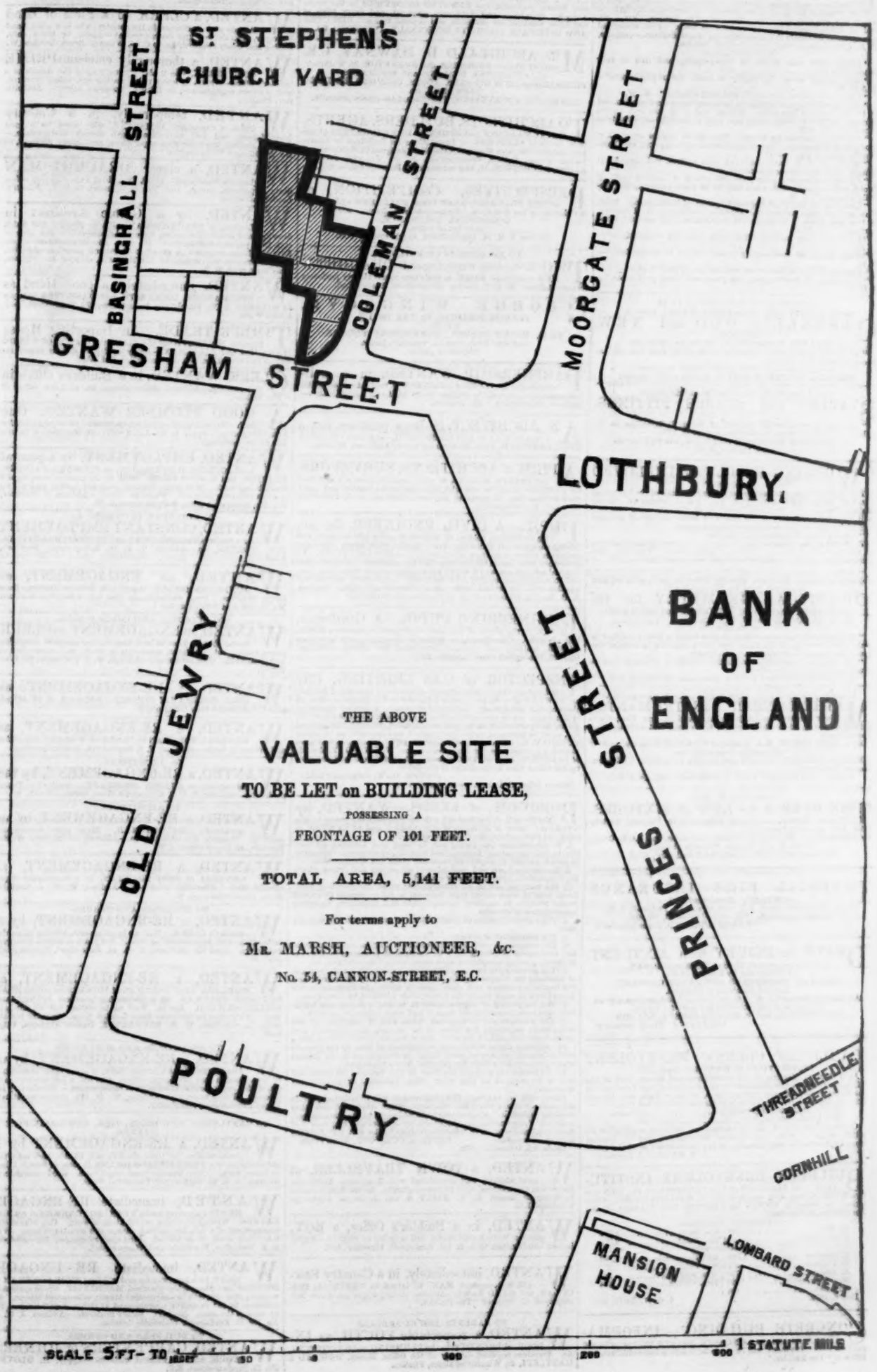
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Mrs. F. C. Jefferys (elected)	.....	424 votes.
Mrs. Finch Spencer	.....	364 "

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Successful Candidates.

M. Leich	1,748	Mrs Seare	2,674
J. W. Annis	2,184	Mrs. Budd	2,877
The others were			
F. Landon	1,746	Mrs. Hambrook	1,809
D. Thomas	412	Mrs. Bear	272
R. Bibby	749	Mrs. Williams	943
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JOSEPH DAW, Principal Clerk.

Sewers Office, Guildhall, November 29, 1872.

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